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A COURSE OF LECTURES ON SYPHILIS.

DELIVERED AT THE SCHOOL OF MEDICINE, GROSVENOR-PLACE, ST. GEORGE'S HOSPITAL, SESSION 1841-42.

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Lecture V.

The anatomy of the male reproductive organs, continued. The vesiculæ seminales. The prostate gland; its third lobe; morbid enlargement of, in old age, causing retention of urine. Cowper's glands.

Nature and properties of the seminal fluid; its physical characters; chemical analysis; examined microscopically. Liquor seminis. Seminal globules. Spermatozoa, or seminal animalcules. Necessity of the material contact of the spermatozoa with the ovum or germ of the female, in order to produce fecundation. The lecturer's observations on human spermatozoa, taken from an executed criminal, and examined microscopically two hours after death. Wagner's discovery of the development of the spermatozoa. Valentin's observation on their organisation.

The male intromittent organs. The penis.—The corpora cavernosa; their fibrous sheath not elastic, but possessing vital contractile fibres. Corpus spongiosum. Bulb and glans penis. The erectile tissue of the penis; shown by corroded preparations to be composed of blood-vessels, and not of cells; Müller's views on the subject. Arteriæ helicinæ.

Gentlemen,—Of the organs of generation producing secretions peculiar to the male sex, I have already described the testicles and the vesiculæ seminales; there remains the prostate gland, to which I may add the antiprostatic or Cowper's glands, and to these I now beg to draw your attention. The precise position of these glands, as well as that of the vesiculæ seminales, will be better understood when the bladder and urethra come under our consideration. At present I wish principally to speak of their intimate structure, in order to connect them functionally with the testes and vesiculæ seminales, with whose secretions they empty their peculiar fluids into the urethra. The productive fluid of the male subject, as emitted from the urethra, is, you will perceive, a compound of the secretion of the testes of the vesiculæ seminales, of the prostate, and of Cowper's glands.

Of the vesiculæ seminales, I have still to add, that the convoluted and diverticulated tubes of which they are composed, are so folded and arranged as to constitute two pyriform masses, of about two inches in length and half an inch in breadth; the smaller extremities of which converge, and are directed forwards towards the sulcus between the lateral and middle lobes of the prostate gland, and are only separated from each other by the vasa deferentia, which adhere to their inner margins. As the vesiculæ are followed backwards they will be observed to diverge from each other, and an interval of an inch or more will be found to intervene between their larger extremities: a fold of the recto-vesical fascia, which may be traced backwards from the capsule of the prostate on to the vesiculæ seminales and vasa deferentia, binds them close to the base of the bladder, and retains them fixed in that position. I am much mistaken if this fold, which is dissected with difficulty from the vesiculæ, has not muscular fibres blended with it, or a texture resembling that of the dartos muscle endowed with contractile power, and which, I am disposed to think, is not entirely inert in expelling the contents of the vesiculæ into the urethra. The parietes of the vesiculæ seminales I should describe as composed of three layers; an internal mucous lining, an external fibrous capsule, and an intermediate layer of less distinct texture, into the formation of which muscular fibres probably enter.

The prostate gland in the adult, and in its healthy condition, is about the size and has something of the form of a chesnut; it will be found to surround the neck of the bladder and the commencement of the urethra, which canal traverses it from behind forwards in the median line, but above the centre of the gland, one-third of which will be found above and two-thirds below the urethra. The prostate gland is surrounded by a pretty firm fibrous capsule, which is connected forwards with the deep perineal fascia, laterally with the vesical layers of the pelvic fascia, below with the recto-vesical fascia, and above with that portion of fascia which is reflected from the posterior part of the pubes on to the prostate and bladder, and which has been by some anatomists termed the anterior ligament, and by others the tendon of the bladder. The prostate gland is composed of three lobes; two lateral of equal size united in the median line, and a central or middle lobe, which is much smaller. The middle lobe is found at the posterior part of the gland; it is situated above the lateral lobes, and is separated from them by a fissure, into which the ejaculatory ducts enter as they pass through the substance of this gland to gain their termination in the urethra.

The texture of the prostate gland is close, hard, and resisting; a section of it presents an uniform surface, of a light brown or yellow colour; it is composed of an aggregation of numerous little glandular elements closely adherent: these are formed of the ramifications of minute secretory tubes, which unite ultimately so as to form from eight to twelve little ducts for each lateral half of the gland; these ducts pour their contents into the urethra at the sinus prostaticus on either side of the caput gallinaginis. There is nothing peculiar in the supply of blood-vessels, lymphatics, or nerves, to the prostate gland; but a plexus of veins should be noticed to you, which will be found situated on the lateral part of the gland under cover of the vesical fold of fascia: this plexus intervenes between the dorsal vein of the penis, whose blood it receives, and the internal iliac vein, into which it empties itself. It is by some termed the vesical plexus; veins from the prostate and from the bladder enter into it.

To impress upon your minds the importance of studying the relative and pathological anatomy of the prostate gland, I shall briefly observe, that in old age this structure usually undergoes a morbid enlargement, not unfrequently attaining the size of an apple. The effect of this enlargement on the urethra, is to close it to such an extent as to cause retention of urine. The small middle lobe in this disease is usually the most affected, growing occasionally to double the size of the entire healthy gland; when this is the case it projects towards the neck of the bladder, and completely plugs up the orifice of the urethra. The exertions of the patient under these circumstances to void the urine forces the plug more tightly into the commencement of the canal, and relief is only to be gained by the aid of a catheter appropriately curved for the purpose. Should the enlargement only implicate the lateral lobes, the difficulty experienced in introducing an instrument will be less, especially if the lateral lobes be equally affected; but if one side partake of the enlargement more than the other, the urethra would be made to deviate from the median line, and a flexible instrument should then be had recourse to.

I should also remind you, that in the lateral operation of lithotomy the prostate is incised from the urethra downwards and outwards for the anterior two-thirds of its extent. In making this incision, if the knife be directed vertically downwards in the median line, the ejaculatory ducts would be wounded, and impotence would probably be the result of this mutilation. If, on the contrary, the knife be carried horizontally outwards, the vesical fold of the pelvic fascia which covers the lateral part of the gland would be divided, and the urine would escape between this fold and the peritoneum; an error which would almost necessarily be followed by fatal consequences.

The antiprostatic or Cowper's glands are two little bodies about the size of peas, blended with each other in the median line, situated in contact with the under-surface of the membranous portion of the urethra, immediately behind the bulb of the corpus spongiosum; they are occasionally very indistinct, and in some subjects appear to be altogether wanting: they are made up of the ramifications of two principal ducts; these ramifications are connected together, and surrounded by a tough cellular tissue to constitute the glands. The two principal ducts, which are about three-quarters of an inch in length, may be seen to enter the floor of the spongy portion of the urethra near its commencement, and on either side of the median line.

I have now traced the secretions peculiar to the male sex from their respective organs into the urethra, and have explained to you the structure of the organs producing them. Before I proceed to the consideration of the anatomy of the intromitting organs of the male, which are to aid in conveying the productive fluid to the germ-preparing organs of the female, I must enter upon an examination of the nature and properties of the fecundating fluid of the male, to which the term semen is applied.

This inquiry is of extreme interest, and is not without its practical bearing in considering the causes and treatment in any particular instance of impotency in the male, or of sterility in the female. You will find that

we shall be able to adduce proof of the absolute necessity of the material contact of a particle of semen, however minute in quantity, with the ovum or germ of the female, before the commencement of the reproductive function, or impregnation, can be said to have taken place. You perceive, then, that a complete obstruction of any one of the various canals and passages leading from the essential organ in the male, the testis to the equivalent organ, the ovarium in the female, would entirely prevent this important process by which the continuation of the species in most plants, and in all the more perfect animals, is thus mysteriously affected.

In contemplating this subject, I need not tell you that all we have hitherto been able to comprehend or observe are the phenomena attendant upon the series of changes which commence at the period of impregnation in the germinal vesicle, and terminate in the production of a perfect being, resembling the parents by whom the germs were supplied.

The physical properties of the fecundating fluid of the male are readily recognised; the combined secretions as they are expelled from the urethra present to our notice a fluid of the consistence of the white of an egg, or of mucus, which in appearance it much resembles, being semi-transparent, but more opake in some parts than in others; its odour is peculiar, and has been compared to the farina of chesnuts, or to grated bones; it is heavier than water, and when heated gives off ammonia; it shows a weak alkaline reaction, and becomes more transparent on being exposed to the air. Examined chemically, it will be found to be coagulated, and rendered more opake by the addition of alcohol, and by other substances having the effect of coagulating albumen, which enters freely into its composition.

Vauquelin, who analysed the human spermatic fluid, found it composed of

Water	90
Soda	1
Phosphate of lime	3
A peculiar substance (spermatine)	6
Muriate of lime	A trace
	100

Besides the above, Lassaigne detected in the seminal fluid of the horse, muriate of magnesia, of soda, and potash. Fourcroy and Vauquelin, in addition to these, found in the fluid from the milt of fishes, phosphorus in sufficient quantity to emit light.

But the microscope discloses by far the most remarkable and characteristic property of the fecundating fluid, viz., the existence of numerous minute animalcules in it. These animalcules were first discovered by Ludwig Hamm, a student at Leyden, in the year 1677, and an account of them was published by Leuwenhoek in the same year. These infusorial animalcules must be classed among the entozoa, inasmuch as their abode is in the interior of other living animals. Baer has given to them the very appropriate name of spermatozoa, and has considered them allied to the Cercaria. The spermatozoa differ in size and form, not only in different classes of animals, but also in different families, genera, and species (Fig. 6, Nos. 4, 5, 6, 7); they bear no relation in point of size to the animal in which they exist, being larger in the mouse than in the whale or elephant, and between fifty and sixty times larger in the snail than in the human subject.

The spermatozoa proceed from the testicles only; and although found in great numbers in the vesiculæ seminales, they are foreign to them, being conveyed there by the vasa deferentia. The fluids of the prostate and of Cowper's glands are also entirely free from them. That the fecundating property of the seminal fluid depends upon the presence of the spermatozoa, appears to be sufficiently established by the following facts:—Firstly, mule or hybrid animals, which it is well known are unable to propagate their species, are either deficient in this characteristic element of the seminal fluid, or the spermatozoa in them are very imperfectly formed; secondly, these animalcules are found in the testes of birds in the pairing season only; thirdly, in the human subject, and in all animals before the age of puberty, the spermatozoa are not developed; fourthly, if the vasa deferentia be tied in a dog, in which animal there are no vesiculæ seminales, he is rendered unproductive.

Prevost and Dumas were so convinced that the seminal animalcules were essential to fecundation, that they performed experiments to ascertain the number of spermatozoa which would be necessary to impregnate an ovum; they impregnated artificially the ova of a frog, by touching them with the seminal fluid of the male, and they found that with a very small portion of this fluid, in which they counted 226 animalcules, they were enabled to fertilise as many as 61 out of 380 ova to which it was applied; so that, according to this experiment, between three and four animalcules were required to produce fecundation in each ovum. The extraordinary prolific power of a minute quantity of the seminal fluid was long since proved by the ingenious experiments of Spallanzani, who diluted five grains of this fluid from the toad in eighteen ounces of water: the point of a needle dipped into this solution, and applied for a moment to an ovum, was sufficient to produce fecundation.

The different varieties of spermatozoa have been ranged by Czermack under three principal heads; the Cephaloidea, the Uroidea, and the Cephauroidea; the first resembling the monades among infusoria, having heads, or rounded bodies, without tails, existing in fishes and some annelida; the second, thread-like, resembling the vibriones, found in mollusca,

amphibia, and some birds; the third allied to the cercaria, and possessed of heads or rounded bodies, and having also thread-like appendages or tails, as in mammalia, insects, and some birds.

For microscopical examination, the secretion of the testicle may be procured separate from that of the vesicula, prostate, or Cowper's glands, by dividing the vas deferens in a recently-destroyed animal, and pressing out the fluid it contains: the drop of fluid thus procured should be placed on a piece of glass and covered with a small portion of mica. The specimen should be examined by a high power; an object-glass of the eighth of an inch focus answers very well: it will be seen to be composed of a transparent fluid, crowded with innumerable spermatozoa in rapid and continued motion, mixed with a few transparent globular bodies (seminal granules or globules), some nucleated cells and epithelium scales: these two latter are extraneous to the seminal fluid, and therefore will require no further notice here; the former I shall now proceed to describe.

The transparent medium in which the other constituents of the secretion of the testes are situated, is scarcely perceptible under the microscope, except at the edges of the specimen where its outline renders its existence evident.

The seminal granules are minute, colourless globules, not very numerous, having a granular surface, and resembling much the lymph or chyle globule; they measure from $\frac{1}{350}$ to $\frac{1}{500}$ of a line in diameter, or would average about $\frac{1}{3000}$ of an inch.

The spermatozoa are observed in countless myriads in one drop of this fluid moving with rapidity (if procured from a recently-destroyed animal), some to and fro; others ranging more widely about the field; many remaining altogether stationary, or waving only their delicate caudal filaments, with which they describe the most graceful and beautiful curves, resembling the windings of the eel or snake: in some the head and upper part of the caudal appendage continues to move from side to side, while the rest of the animalcule remains stationary. The motions become more sluggish in about a quarter of an hour, and in half an hour will have almost ceased. If the specimen be now artificially warmed by being held in the hand, carried in the pocket, or by other means, the movements become as rapid and vigorous as ever, and will continue for twelve or twenty-four hours, when the warmth is thus artificially maintained. The fluid from the vas deferens will in many animals require dilution before the movements can be seen in perfection: recent serum, milk, or mucus, answers well for this purpose; pure water generally spoils the specimen.

Through the kindness of a medical friend, I had an excellent opportunity, in a man who was lately executed, of examining the

Fig. 5*.

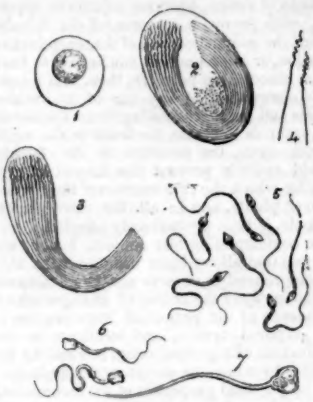

Fig. 5* represents Wagner's view of the development of the spermatozoa; also, specimens of the seminal animalcules in a bird, in man, in the dog, and in the bear.

No. 1. A vesicle containing one granular seminal globule.

No. 2. A vesicle in which is seen a curved fasciculus of spermatozoa, with numerous minute granules, but no seminal globule.

No. 3. A fasciculus of spermatozoa, less curved than in No. 2, still enveloped by a delicate membrane, in which, however, there are no minute granules.

No. 4. Separate spermatozoa (the tail part should be longer) from a bird (certhia familiaris, or common creeper), to which Nos. 1, 2, and 3, also belong, from Wagner.

No. 5. Spermatozoa from the human subject, taken from life, and showing pretty faithfully the forms they assume while in motion. The varieties in the form of the head are also here delineated,—some presenting a projecting proboscis; some simply pointed anteriorly; others rounded; while in many an appearance of a central spot may be remarked.

No. 6. Spermatozoa in the dog: the head is rather wider anteriorly than posteriorly. In one a nodule is represented on the tail portion, a short distance from the head—an appearance which is not unusual; taken from life.

No. 7. From Valentin—a spermatozoon in the bear, showing what Valentin considers to be a mouth, an anus, and the outline of viscera.

human spermatozoa, taken about two hours after death from the vas deferens, from the epididymis, from the body of the testis, and from the vesiculæ seminales; they were very distinct in the fluids from all these sources, excepting from the testis, in which, though numerous, they were very imperfectly developed. In all, the movements had ceased, or nearly so. Three hours afterwards the same specimens (having been carried in the waistcoat-pocket for that time) were again examined under the microscope, and to my surprise the movements of the spermatozoa had become almost as lively and active as I had ever observed them in an animal immediately after death, excepting in the specimen which was taken from the body of the testis, in which no movement could be detected.

At twelve o'clock, p.m., sixteen hours after the death of the individual, some of these animalcules were still moving, though sluggishly. The following morning all motion had ceased, but this might have depended partly upon the drying of the specimen.

In the fluid from the vesiculæ seminales, besides the animalcules there were numerous globules, of various sizes and appearances.

The prostatic secretion, under the microscope, appeared to be composed of a fluid containing somewhat similar globules, varying considerably in size, many of them resembling the common mucous globule, mixed with epithelium scales, and nucleated cells. I was unable to procure any secretion from Cowper's glands.

The form of the spermatozoa may be judged of from the woodcut. Fig. 5*, No. 5, in man, No. 6, in the dog, were taken from life: the others are copied either from Müller, Wagner, or Valentin. I measured these animalcules in man and in the dog at the same time, and found their respective measurements as follows:—

	Length of Head or Body.	Length of Tail.	Length of the entire Animalcule.
Man	$\frac{1}{3250}$	$\frac{1}{703}$ to $\frac{1}{330}$	$\frac{1}{300}$ of an inch.
Dog	$\frac{1}{1313}$	$\frac{1}{330}$ to $\frac{1}{306}$	$\frac{1}{318}$

Wagner states, that the human spermatozoon does not exceed $\frac{1}{30}$ or $\frac{1}{40}$ of a line in length: the head measured separately, he says, seldom exceeds $\frac{1}{700}$ or $\frac{1}{800}$ of a line in its long diameter. This is somewhat less than the measurement I have given.

The gradual evolution or genesis of the spermatozoa has been discovered by Wagner. He recommends, for the study of this interesting subject, that the observations should be made in a bird of the passerine order. In the autumn, it will be observed that the spermatozoa disappear, and the testes shrink to $\frac{1}{20}$ or $\frac{1}{30}$ of the magnitude which they exhibit in the pairing season. If the fluid taken from the testes at the approach of spring, and while these organs are increasing in bulk, be examined microscopically, it will be found to contain—First. The seminal globules. Secondly. Vesicles containing one or more seminal globules. (1, Fig. 5*.) Thirdly. Vesicles containing one or more seminal globules, surrounded by exceedingly-minute granules. Fourthly. An arrangement of these minute granules in a linear series, while the seminal globules disappear. Fifthly. A distinct curved fasciculus of spermatozoa, enveloped in an oval vesicle, in which is also contained some of the minute granules. (Vide Fig. 5*, No. 2.) Sixthly. A fasciculus of spermatozoa becoming straight, still surrounded by a delicate membrane. (3, Fig. 5*.) Seventhly. The individual spermatozoa forming a fasciculus, separating from each other, and capable of spontaneous movement. (4, Fig. 5*.) These several appearances are enumerated in the order in which he conceives the several changes constituting the stages of development of the spermatozoa take place. These observations of Wagner's have been confirmed by Von Siebold, Valentin, and by Kollmann. With respect to the internal organisation of the spermatozoa very little is known: a spot has been noticed by most authors in the centre of the head part of these animalcules, and by some a nodule about the centre of the tail; this I have particularly remarked in the dog. (6, Fig. 5*.) Valentin conceives that in the spermatozoa of the bear (vide 7, Fig. 5,*) he has distinguished the outline of viscera, and even an outlet and inlet to these viscera.

For fuller information on the subject of the spermatozoa, I beg to refer you to "Müller's Physiology," translated by Dr. Baly, to the article Generation, by Dr. Allen Thompson, in the "Cyclopædia of Anatomy and Physiology," edited by Dr. Todd, and to "Wagner's Physiology," translated by Dr. Willis.

Having now explained to you what we know of the nature and properties of the male prolific fluid, I proceed, in the next place, to direct your attention to the anatomy of the structures which are to deposit this fluid in the organs appropriated in the female to receive it.

The intromittent organs of the male are the penis, the urethra, and certain accessory parts. These are the structures by which the virus of the syphilitic poison is usually first received, or communicated, and therefore peculiarly related to our subject.

The male intromittent organ, the penis, is composed of erectile tissue, contained in three compartments, or tubular sheaths of fibrous membrane; two of these, the corpora cavernosa, are situated parallel with each

other, side by side, and united in the median line, excepting posteriorly, where, for the last two inches, they separate, and become divergent, forming what are termed the crura penis; there is a tendency also anteriorly to a bifid arrangement, but to the extent only of forming two very slight projections, to which no name is applied. Where the corpora cavernosa are united in the median line, a groove will be remarked, superiorly and inferiorly. In the upper groove is lodged the vena dorsalis penis (vide Fig. 8, No. 5), and to the lower is attached the corpus spongiosum (3, Fig. 8), or the third compartment of erectile tissue of the organ. The crura penis terminate in pointed extremities; they are firmly attached to the rami of the pubes and ischium, and are covered by the erectores penis muscles. The anterior, bifid, and slightly-projecting terminations of the corpora cavernosa are overlapped, and concealed by the glans penis, which is firmly adherent to them. The corpus spongiosum (Fig. 6, No. 3, and Fig. 8, No. 3), situated, as has been stated, below and between the corpora cavernosa, is traversed by the urethra; it terminates posteriorly in an enlargement, called the bulb (1, Fig. 6), and anteriorly in a still greater enlargement, of a peculiar form, termed the glans penis. (2, Fig. 6). The bulb is somewhat pendulous, and can hardly be said to be connected with the corpora cavernosa. It is surrounded by the fibres of the accelerator urinæ muscle. The glans is firmly attached to the bifid, slightly projecting anterior extremities of the corpora cavernosa, which it overlaps and conceals.

The fibrous sheath of the corpus cavernosum is about a line in thickness, very dense and tough; it is always described as elastic, but this is a mistake, which there is no difficulty in proving. If a portion of the sheath be removed, it will be found to resist all attempts made to stretch it; it is, in fact, eminently inelastic: yet it adapts itself readily, during life, to the distended or empty state of the erectile tissue which it contains. This, I believe, is effected by the blending of vital contractile fibres, with the inert fibrous tissue of which it is principally composed. These contractile fibres I have been in the habit for the last ten years, in my lectures on anatomy, of drawing particular attention to —they may be readily distinguished on the outer surface of the sheath of the corpora cavernosa, and to my eye they greatly resemble muscular fibres. They run parallel with each other, chiefly in the longitudinal direction, and present a moist-looking, shining surface.

Where the two corpora cavernosa unite a septum is produced (2, Fig. 8; 2, 3, Fig. 7), which serves to separate the erectile tissue of one corpus cavernosum from that of the other. This septum is incomplete for about the anterior two-thirds of its extent (3, Fig. 7), and being here formed of parallel fibres, having intervals between them, it has received the name of septum pectiniforme. From the interior of the sheath of the corpus cavernosum there pass numerous delicate cellular partitions, which cross each other in various directions, forming innumerable cells (5, Fig. 7; 1, Fig. 8); their office is to support and connect together the minute ramifications of the blood-vessels which constitute the proper erectile tissue of the organ. If a blowpipe be introduced into one of the crura of the penis, air may be impelled readily into these cells, and the corresponding corpus cavernosum will be distended; the air will also pass through the pectiniform septum, and inflate the opposite corpus cavernosum and crus. If the air be retained in the cells, and the specimen dried, the whole interior will appear, on making a section into it, to be cellular. This appearance has given rise to the erroneous notion that the erectile tissue of the penis was composed of minute cells, which were supposed to intervene between the peripheral, arterial, and venous branches. When the arteries of the penis have been injected previous to the inflation of these intervascular cells, a very distinct and pretty view of the trunks and principal branches of these arteries will be obtained, as you see in this preparation. (6, Fig. 6.)

The true nature of the erectile tissue, however, will be rendered apparent by throwing a firm, coarse injection into the corpora cavernosa, or corpus spongiosum. The injection may be made to enter by the veins, but the readiest way is to make an opening into the crus penis, or bulb of the corpus spongiosum, and to insert a small pipe into one of the numerous little vessels thus divided, taking care that it does not pass on one side of them, otherwise the cells already described will be filled instead of the vessels. The vessels should not be over-distended, or they will become flattened by the pressure of the resisting sheath which contains them. The specimen should now be corroded by maceration, in an acid sufficiently strong to destroy all the animal matter; or it may be placed in water, and allowed to putrefy. The material of the injection will now alone remain, and it will be seen to have been moulded in cylindrical vessels and not in cells. Fig. 9, represents a preparation thus made from the human subject, and which is now on the table before you. Here is another, also, of the penis of a horse, where the vascular nature of the erectile tissue is, if possible, still more distinct.

Müller gives a different account of the erectile tissue of the penis, to which I cannot subscribe. He conceives that he has discovered a new set of vessels, which he terms the arteriæ helicinæ: these he describes as arterial twigs, of about a line in length,

Figs. 6, 7, 8, 9, 10, 11.

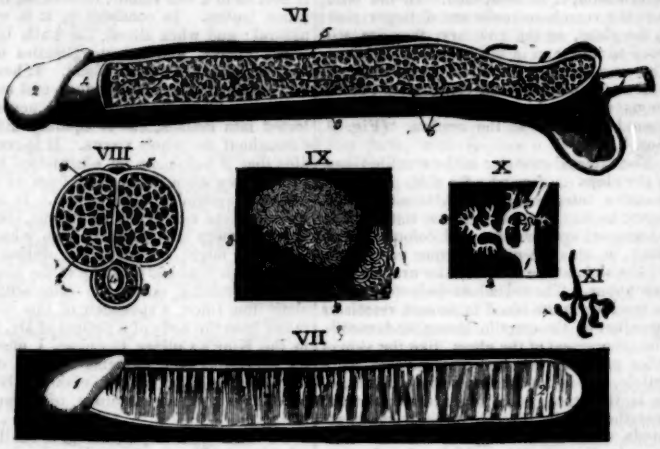

Fig. 6. Side view of the penis. A longitudinal section has been made through one corpus cavernosum and crus.

1. The bulb.
2. The glans.
3. The corpus spongiosum.
4. The uncut portion of the corpus cavernosum.
5. The cut portion of the corpus cavernosum and crus, showing the intervascular cells; and also,
6. The trunks and larger branches of the arteries of the corpus cavernosum.
7. The membranous portion of the urethra.

Fig. 7 represents a longitudinal view of the septum pectiniforme.

1. The glans penis.
2. The posterior third of the septum, which is complete.
3. The anterior two-thirds, incomplete or pectiniform.

Fig. 8. A transverse section of the penis.

1. Intervascular cells of corpus cavernosum.
2. Septum pectiniforme.
3. Intervascular cells of corpus spongiosum.
4. Section of the urethra.
5. Section of the vena dorsalis penis.

Fig. 9. Taken from a corroded preparation, showing the true vascular character of the erectile tissue.

1. Corpus cavernosum.
2. Corpus spongiosum.
3. Glans penis.

Fig. 10. From Müller.

1. The trunk of an artery belonging to the erectile tissue.
2. A large branch of the same.
3. Helicine arteries.

Fig. 11. Also from Müller, showing the helicine vessels more magnified.

and $\frac{1}{2}$ or $\frac{1}{4}$ of a millimetre in diameter, derived from the trunks and branches of the arteries of the corpora cavernosa and corpus spongiosum. (Vide Figs. 10 and 11.) He describes them as forming curves, resembling the tendrils of the vine, and as terminating in blind extremities, or blood containing processes, but without any visible outlets either in their sides or extremities. These arteriæ helicinæ, he informs us, project into venous cells connected with the veins of the penis. It is from these helicine vessels, he imagines, that the blood must pass to distend the venous cells during the erect state of the penis, although no orifices have been detected in them. The blood is conveyed from these cells by the venous radicles. He also describes another set of extreme arterial twigs, but which are appropriated to the ordinary function of nutrition, and terminate as usual in the capillary veins.

The fibrous sheath of the corpus spongiosum is much less dense than that of the corpus cavernosum; it is equally inelastic, but no appearance of contractile fibres can be distinguished as entering into its composition. From its inner surface similar cellular partitions proceed, but more delicate, and which divide into more minute cells; these cells, however, do not constitute part of the erectile tissue, but simply support the

blood-vessels, which are exceedingly minute, and of whose ramifications, as in the corpus cavernosum, it is composed. In the bulb, both the vessels and cells are of larger size; in the glans, on the contrary, they are still more minute than in the corpus spongiosum. The erectile tissue of these three parts, as well as the intervascular cells, are all continuous with each other, and are disposed around the canal of the urethra. (Fig. 8, Nos. 3, 4.)

The external covering to the erectile tissue of the glans is formed of a thin, peculiarly sensitive integument, which is closely adherent to the subjacent vascular tissue. This integument appears of a red colour, resembling in this respect mucous membrane, with which, at the orifice of the urethra, it is continuous. The red colour does not depend so much upon the blood in its own vessels as upon that of the erectile tissue underneath. The integument of the glans, like the skin of other parts of the body, is covered by a cuticle, and is not moistened by a secretion, as is the case with mucous membrane; nevertheless, in disease it occasionally reminds us of its analogy to mucous membrane by the secretions which arise from its surface.

Where the glans penis and corpus spongiosum are blended together, the skin of the one is continuous with the fibrous sheath of the other, but elsewhere it joins the common integument of the penis. For the form of the glans penis I must refer you to the diagram, Fig. 6, No. 2. Its circumference posteriorly is projecting, and passes beyond the corpora cavernosa, where it is connected, as has been stated, to their anterior bifid extremities. This projecting ridge of the glans is termed the corona glandis; upon it will be found numerous sebaceous follicles, from which a secretion of a white colour, and of a peculiarly unpleasant odour, is produced: hence the name of glandulæ odoriferæ, as applied to them; they are also known by the appellation of glandulæ Tysoni. The description of the frænum, of the preputium, and of other parts connected with the penis, I must defer to our next lecture.

OBSERVATIONS
ON
THE MINUTE ANATOMY OF FATTY DEGENERATION OF THE LIVER.

By W. Bowman, F.R.S.,

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Fatty degeneration of the liver is found almost exclusively in phthisical subjects. Louis met with it in forty out of one hundred and twenty cases. The organ is always enlarged in a degree proportioned, *cæteris paribus*, to the quantity of fat it contains. It is altered to a buff colour, resembling that of fallen leaves. In consistence, it is nearly natural; and when sliced, the knife is rendered greasy, and minute globules of fat appear, mingled with the blood. It has also an unctuous feel, greases paper, and readily inflames. This deposit of fat is never collected into masses, but is equably diffused throughout the whole viscus. It is remarkable that it occasions no obstruction to the portal circulation, as is clear from its being always unattended with ascites. It never, indeed, gives rise to any symptoms (beyond those of mere enlargement) from which its existence might be suspected during life. Thus much is already known of the disease.

In examining under the microscope, a short time since, a specimen of this disease taken from the body of a patient of Dr. Budd in the King's College Hospital, I observed an interesting fact, denoting the seat of the fatty accumulation, which, with Dr. Budd's concurrence, I am desirous of communicating.

To make clear my meaning, I shall premise a very few words on the minute structure of the lobules of the liver. Mr. Kiernan has well described the *vascular element* of these minute representatives of the organ. It consists of a capillary plexus intervening between the portal and hepatic veins. The diameter of the capillaries in this plexus is very large, being nearly twice that of a blood-globule; while the diameter of the capillaries in most other textures is the same as that of the blood-globule, and in some (as muscle) even less, so that the blood-globules only pass along by undergoing elongation. This large size of the capillaries of the liver, probably, has reference to the deficiency of propelling power in the portal circulation. This *portal-hepatic plexus* may be termed *solid*, as it is extended in all directions, and presents areolæ of nearly the same dimensions in whatever plane it is cut. These areolæ are in general not larger than the diameter of the vessels which form them, so that a well-injected specimen might appear to be composed of little else than vessels.

In the interstices of this capillary plexus lies the *secreting portion of the bile-ducts*. If a thin section of an uninjected lobule be examined with a sufficient magnifying power, it is seen to be almost entirely made up of small, irregular, angular particles, each containing a circular or oval nucleus, within which is a minute point or two, the nucleolus. These particles have a determinate outline, are of some thickness, and possess a fine granular aspect. They also contain (which is very remarkable) one, two, or more globules of fatty matter, irregularly placed, and of somewhat variable bulk, though usually about the size of those I have represented, from the healthy human liver, in Fig. 1.

Fig. 1.

We owe the first good description of these nucleated particles to Henle,* who (with Purkinje and Schwann) believes that they correspond with the epithelium found in all other true glands, and that they are the proper glandular element, to which the secretion is due. No one who has extensively examined the minute structure of glands, can well be of a different opinion, though it must be allowed that we are still ignorant of the precise anatomy of the ultimate ramifications of the biliary-ducts. The oily globules found in the nucleated particles appear to have special reference to the chemical nature of the secretion, which contains a large quantity of highly-carbonised matters, that are to be regarded, according to Dr. Prout, as modifications of the *oleaginous principle*. The nucleated particles of the sebaceous glands also contain fat, and in this respect offer a striking analogy with those of the liver.

The microscope at once reveals the seat of the *fatty deposit in the diseased state of the organ*. Instead of containing a few minute scattered globules, *the nucleated particles are gorged with large masses of it*, which greatly augment their bulk, and more or less obscure their nuclei. (See Fig. 2.)

Fig. 2.

This simple description develops the whole anatomical condition of the disease, as well as explains its rougher characters, the bulk, the colour, and the freedom of the circulation. The particles, lying in the interstices of the capillary plexus, enlarge slowly and equably, in such a manner as to exert no injurious pressure on the vessels, while their new contents impart that peculiar hue which characterises the disease.

It also throws no little light on the nature and source of the disease. It seems to show that the fat is an *increase of a normal constituent*, and not a formation altogether unnatural in kind; thus distinguishing it from the fatty degenerations of other tissues, where fat is deposited in situations from which it is naturally absent. It likewise indicates an increased activity in the secreting action of the liver, for a considerable period before death, though why the *accumulation* of fat should occur within the nucleated particles does not so clearly appear. To explain that fully, will require a more complete knowledge than we yet possess, of the chemical affinities at play within these small laboratories of nature.

That the liver should for a length of time be urged to increased activity in phthisis, where the respiratory function is so gradually, yet so enormously, interfered with, is not wonderful, when it is remembered that its chief office is to throw off carbon from the system. This consideration may give a clue to the cause of the disease, or, at least, it may serve as a guide to future inquirers in their investigation of facts. It is singular that this condition of the liver has been observed in only about a third of the whole cases of phthisis; and scarcely at all in other chronic diseases, even of the lungs. To what is this to be attributed? It is possible that a less amount of morbid accumulation may have occurred in cases where it has not been recognised. But it will be worth while to inquire, hereafter, in connection with the state of the liver in such cases, what has been the duration and extent of the tubercular disease of the lungs? whether it has been accompanied, and its progress accelerated, by complications of inflammation, hæmorrhage, &c., what is the degree of emaciation at the time of death? whether the process of emaciation has been rapid or slow? and whether the patient was previously corpulent or lean? An attention to these circumstances may possibly explain the apparent difficulty.

I cannot conclude without remarking, that the fact which has been detailed, is an admirable example of the kind and degree of insight into pathological changes, which the microscope is calculated to afford. It is happily unnecessary, in the present day, to come forward as the advocate of this invaluable instrument, as an aid to the study of disease. The fact is also of uncommon interest, as an illustration of the strict subordination of the study of pathology, as well to that of *minute anatomy* and *minute chemistry*, as to semeiology and that coarse inspection of morbid changes, which has too long usurped the name of *morbid anatomy*.

Description of the Figures.

Fig. 1. Nucleated particles from the healthy human liver.

Fig. 2. The same, from the liver affected with fatty degeneration.

a a Nuclei. *b b* Nucleoli.

c c c Fatty globules.

* They have also been examined by other foreign anatomists, as well as British. Mr. Erasmus Wilson discovered them in 1838 in the liver of the cat, when as yet the works of Henle were unknown in this country.

MISCELLANEOUS CONTRIBUTIONS TO PATHOLOGY AND THERAPEUTICS.

By James Richard Smyth, M.D.

FATAL CASE OF HÆMOPTYSIS.

October 5, 1837, Charles Moss, aged 47, of middle size, lax fibre, and asthmatic expression of countenance, has been affected for some years past with difficulty of breathing during foggy weather, and on using any sort of violent exercise. Of late he has had several rather severe attacks of catarrh, with cough and some hæmoptysis. Was seized about half an hour ago, in Albemarle-street, suddenly, with profuse spitting of blood, accompanied by dyspnœa, amounting almost to suffocation. He fell upon the footpath, where he remained for some time insensible, and was afterwards conveyed to his lodgings. He considers that altogether he must have expectorated above a pint of blood. The hæmoptysis still continues, but somewhat abated; blood florid and frothy; distressing orthopnœa, with pain and sense of constriction in the interior of the chest; expression of countenance very alarmed and anxious; cheeks pale and collapsed; lips slightly livid; pulse 130, small and feeble; surface chill. Chest anteriorly very cylindrical and resonant. On applying the ear to its posterior part, over the superior and middle lobes of the right lung a loud, distant, muco-crepitous râle is audible; and over the whole of the same tract, also, the resonance on percussion is dull. Under this part, and over the entire extent of the opposite side of the chest posteriorly, and also in the subclavicular region, a pretty distinct mucous râle is present. In the left precordial region the respiratory murmur is clear and rather intense. Action of heart feeble and rather fluttering, and much more audible at the lower part of the sternum, and in the upper part of the epigastric region, than in its usual situation under the fifth rib: in this latter part its beats are barely and distantly perceptible. Venesection to twenty-four ounces immediately: not followed by any signs of syncope, but some relief of breathing. Blood slightly cupped and buffed. To remain quiet in bed, and let the following medicine be taken:—

℞ *Acetate of lead*, gr. vj;
Peppermint water, ℥vss;
Syrup of Tolu, ℥ss;
Tincture of henbane, ℥ij. M.
A fourth part to be taken every four hours.

6. Eleven, a.m. Feels himself much easier to-day; he spent a pretty good night; the cough and hæmoptysis ceased in a great degree shortly after the visit yesterday, and did not become troublesome till between two and three this morning, since which time up to the present he has expectorated a considerable quantity of red frothy blood; respiration, however, less laborious, but he still complains of pain and sense of constriction in the interior of the chest immediately under the sternum; face less pale and collapsed; skin warm and moist; pulse 105, full and unresisting; bowels rather confined. The muco-crepitous râle is still present in the posterior and right side of the chest, but it is not so loud or so coarse as yesterday: anteriorly over the whole extent of this side of the chest the resonance on percussion is tympanitic, and the respiratory murmur very feeble and brief. In the posterior and inferior part of the opposite side a mucous râle is audible; and anteriorly on this side, in the usual position of the heart, the respiration is still clear and intense.

℞ *Calomel*, gr. ij;
Antimonial powder, gr. iij;
Compound extract of colocynth, gr. iv.
M. Make into two pills; to be taken directly, and followed in the evening by an aperient draught. The lead mixture to be continued.

7. One, p.m. Had a pretty good night, and feels still better to-day. The pills and draught have acted strongly on the bowels, the discharges from which are not of an unhealthy appearance. Little or no dyspnœa, and the pain and sense of constriction in the interior of the chest are quite gone; cough frequent and difficult; sputa tenacious and rusty, but no expectoration of blood since yesterday. In the posterior and inferior part of the chest the resonance on percussion is now rather dull, and the character of the respiratory murmur more crepitous than mucous. At all other points of the chest the auscultic signs are much the same as yesterday. Countenance more natural; tongue clean; skin warm and moist; pulse 103, soft and rather tremulous; appetite little impaired; no thirst; urine less than natural, but not high-coloured.

℞ *Tartarised antimony*, gr. ij;
Peppermint water, ℥v;
Syrup of orange peel, ℥iij;
Tincture of henbane,
Nitric æther, aa, ℥ij. M.
Two tablespoonfuls to be taken every four hours. Two of the cathartic pills to be taken at bed-time. Low diet, with occasionally a little beef-tea.

8. No appreciable change in the symptoms, either general or local, since yesterday. The antimony has caused some nausea and sickness.

9. Feels still easier to-day, but complains much of nausea and sickness; cough less frequent: expectoration frothy and mucous, with little or no tenacity, and no appearance of blood. Over the whole extent of both sides of the chest, posteriorly, the respiratory murmur, faint and interrupted occasionally by a mucous click, is audible. Anteriorly

over all the right side the respiration presents similar characters; but on the opposite side, from the clavicle to the hypochondrium, it is now loudly puerile. Pulse 100, soft and tremulous; action of heart still heard loudest at the lower part of the sternum, and in the upper part of the epigastrium. Other symptoms as before. Omit the tartarised antimony mixture, and take the following instead.

℞ *Camphorated tincture of opium*, ℥ss;
Syrup of squills, ℥vj;
Nitric æther,
Aromatic spirit of ammonia, ℥ij;
Mucilage,
Cinnamon water, aa, ℥ij. M.

Two tablespoonfuls every six hours. Increase the diet.

This patient continued to improve daily, and on the 15th was considered convalescent. The secretion of urine, however, was only one pint in the twenty-four hours, and rather high-coloured, but not albuminous or otherwise abnormal. To remedy this an alkaline diuretic was prescribed, and we heard no more of him till November the 8th, when we were called in haste to see him, at six, a.m., in consequence of his having experienced a return of the hæmoptysis. When we arrived, we found him sitting up in bed; his countenance was expressive of much anxiety and distress; respiration was short and difficult, and he complained of pain and sense of constriction under the xiphoid cartilage; the surface was chill and moist; the pulse quick, unequal, and soft; he had expectorated a large quantity of frothy red blood, which came up with little effort and without pain. The resonance on percussion at all points of the chest was clearer than natural. In the superior and posterior part of the right lung a subcrepitous râle was present; and in the inferior and posterior part of the left lung the respiratory murmur was entirely absent. At the other points of the chest the respiration was audible, but blended and obscured by a variety of mucous râles. In the left precordial region, between the fifth and sixth ribs, neither impulse nor sounds of heart were to be heard, but at the lower part of the sternum and in the scrobiculus cordis the organ was heard beating in a struggling, irregular manner; its impulse and sounds were very defective: the second sound was exceedingly faint, and so close upon the first as to have been almost concealed by it. He had slept none during the night. Venesection to twenty-four ounces. Blood much cupped and buffed, and remarkably dark-coloured; no signs of syncope or prostration. The acetate of lead mixture to be repeated, in the dose of two tablespoonfuls, every three hours. To be kept cool and quiet; and let a little cold tea or arrow-root be taken occasionally.

10. Two, a.m. Was roused out of bed again to visit this patient, in consequence of a return of the hæmoptysis. We found him sitting up in bed; the respiration was difficult and hurried; and in the posterior and inferior part of the right side of the chest the resonance on percussion was dull, and a faint crepitous râle audible. In all other respects much the same as before. He describes his sensations on the return of the hæmoptysis as follow:—He states that his feet and skin generally first become cold, which in a short time is succeeded by a glow of warmth, during the presence of which the spitting of blood commences. Venesection to thirty ounces. Blood not so dark as before, but still presenting a pretty deep buffy crust; no signs of syncope; breathing much relieved. Repeat the tartarised antimony mixture.

Nine, p.m. Continues easier since the morning. Expectoration considerable in quantity, tenacious, ropy, and much streaked with blood, but comes off without much difficulty; pulse 102, small, and unresisting. Otherwise no change.

11. Twelve, midday. Spent a better night; the cough and respiration continue easier; pulse 100, and not so small; expectoration profuse, and streaked with blood, but no distinct hæmoptysis; tongue and skin moist; urine of a dark pink colour; bowels rather confined; some appetite. In all other respects no change. An aperient draught to be taken immediately.

12. Had no sleep last night. About midnight the cough became hard, and the sputa ceased to be expectorated; and at two the hæmoptysis, somewhat profuse, returned. The expectoration is now viscid, and much streaked with blood. No appreciable change in the stethoscopic or general symptoms since yesterday; but altogether the condition of the patient, apparently, is not worse; the skin is moist; and he states that he is in no pain, and that he feels rather hungry.

13. Eleven, a.m. Condition in all respects much the same as yesterday. The hæmoptysis returned in a slight degree between two and three this morning.

14. Two, p.m. No discernible change since yesterday. He slept little during the night, but no return of the hæmoptysis.

15. Spent a restless night, in consequence of dyspnœa and the cough having been troublesome. The hæmoptysis returned in a slight degree between two and three. The crepitous râle is now present in the lower part of both sides of the chest posteriorly, and also in the lower part of the left side anteriorly. Bowels rather confined. In other respects no change. Let him take an aperient draught.

16. Two, p.m. The bowels have been moved twice, and their discharges are not unnatural. The night has been spent restless, but without any return of the hæmoptysis; skin dry, but not unusually warm;

pulse small, rapid, and irregular; tongue congested, slightly livid, and covered in the centre with a brownish fur; considerable prostration; and he refuses everything as sustenance but arrow-root; urine scanty and high-coloured. He complains of some pain occasionally in the lower and anterior part of the right side of the chest; and over this part the resonance on percussion is dull, and the respiration crepitous. In the other parts of the chest there is no appreciable change in the auscultic signs since yesterday; expectoration copious, but presenting no appearances of blood, and it has lost in a great degree its viscid, tenacious character—it is now somewhat diffluent, and of a greenish colour. A stimulating plaster to be applied to the posterior part of the chest on each side.

℞ *Ammoniated tincture of opium*, ℥ss;
Syrup of squills, ʒvj;
Ipecacuan wine, ʒiss;
Mucilage,
Camphor mixture, aa, ℥iiss.

A large tablespoonful to be taken every six hours. To have a little soup or beef-tea occasionally.

17. The blisters have risen well, but he has spent a restless night in consequence of urgent cough and dyspnœa; expectoration profuse, globular, of a greenish-yellow colour, but free from blood. In the night the expectoration ceased for an hour or two, during which time the breathing was so difficult that the patient thought he must have been suffocated; countenance anxious; lips becoming livid; pulse rapid, small and feeble; skin hot and dry; urine high-coloured; the crepitous râle has entirely ceased at the lower and back part of the lungs where it was audible, and is replaced now by bronchial respiration, which is evidently at a greater distance from the ear of the listener; a faint crepitous râle is present in both sides of the chest anteriorly and inferiorly; and at the upper part of the chest, both behind and before, the respiration is distinctly puerile. Let a little warm gin and water be taken occasionally.

18. One, p.m. Passed an uneasy nigh, in consequence of dyspnœa and sense of suffocation; cough urgent; expectoration copious, greenish, and more adherent than yesterday; a coarse crepitous râle is again audible in the posterior and inferior part of the left side of the chest; in the opposite side a sort of dry stifled soufflet is heard during inspiration; and during expiration, which is graduated and prolonged, a loud mucous râle is audible; considerable heat of skin and thirst; signs of sinking evident; countenance pale and anxious; tongue pale, slightly congested, but moist; respirations 32; pulse 120, soft and feeble; bowels not confined; urine high-coloured and scanty; some appetite. Continue the expectorative mixture, and the diet with the gin and water.

19. Spent an easier night; countenance more composed; cough less urgent, and breathing less difficult; respirations 30; pulse and general symptoms as yesterday; the crepitous râle is again present in the posterior, middle, and inferior part of the right side of the chest; at all other points of the chest the auscultic signs remain the same.

20. Had a restless night; the cough and expectoration ceased for some time in the dead of the night, when the breathing immediately became difficult and suffocative; pulse 120, soft and feeble; respirations 33, and laborious; increasing prostration; in all other respects no change. Let him continue the medicines, and have an ounce of port wine every four hours.

21. The night has been spent restless, and without sleep; cough very urgent; expectoration profuse and purulent; prostration still more evident; respirations 35, and spasmodic; pulse 140, small and feeble; surface becoming cold; hands puffed and bluish, but no œdema of the feet; voice suppressed; some stupor; no change in any of the stethoscopic signs.

22. Continued to sink, and died at six this morning.

Dissection Twenty-four Hours after Death.

Lungs not collapsed, but filling up the cavity of the chest at all points; their air-cells much dilated, particularly those of the upper lobes, which were very elastic, and of a blanched exsanguineous appearance. The lower lobe of the left lung completely overlapped the heart, and prevented it from being seen; the inferior two-thirds of both lungs throughout were in a state of grey and red hepatisation irregularly interspersed; the bronchial ramifications at some points were gorged with a sero-purulent fluid, which exuded abundantly on pressure; there were no cellular bands uniting the pulmonary and costal pleura. The pleura investing the posterior and middle part of the upper lobe of the right lung presented a slight depression, and stellated puckered appearance, under which, when divided, was found a mass of fibrine infiltrating the pulmonary parenchyma; it was dry, of a light brown colour, firm, and pretty regularly circumscribed; its size was about that of a small orange; in its centre was found a small cavity (tubercular), lined by a cartilaginous membrane, which contained but two or three earthy concretions.

The heart was rather larger than natural, pale and flabby; its left cavities were completely empty. The right cavities, and also the superior and inferior venæ cavæ, for the extent of four or five inches, were half filled with fibrine, which was tough, smooth on its surface, and striated longitudinally as if

from the action of the circulating current; there were no appearances of disease in any of the valves.

The abdominal viscera were all pretty healthy. The liver and kidneys were a little congested, and a little larger than ordinary, but otherwise normal. The brain was remarkably exsanguineous, but quite healthy in structure.

Remarks.—The observations we are now about to make upon this singular and complicated case of disease will naturally come together under three heads: first, the pulmonary hæmorrhage or apoplexy, with its treatment and partial resolution; secondly, the supervened peripneumony with its fatal results; and lastly, the pre-existent lesion of the air-cells, that is to say, the emphysema, together with the concomitant asthmatic and catarrhal affections, from which it is manifest this patient had been for some years more or less a sufferer. The propriety of the term "apoplexy" which Laennec and some other preceding writers have applied to the hæmorrhagic affection of the lung under which this patient laboured at the onset, and during the early period of his illness, has been questioned by Dr. Elliotson; but how far he may be correct in his strictures upon this point of medical nomenclature, we will not take upon us to judge. It is a matter, at all events, of no practical importance. If the pathology of a disorder be duly understood, it imports little, we conceive, in a therapeutic point of view, by what name it be designated, or whether, indeed, it receive a designation at all. The anomalous lesions, the various states and degrees of deranged physiology (if we may be allowed the expression) for which the practitioner finds himself daily called upon to prescribe, are they less numerous or of less frequent occurrence than those which have obtained names and places in the systems of nosology? We are disposed to think not. Who that for any length of time but attentively notes his own observations, having recourse to no instructor but nature alone, will long burden his memory with the classifications of Cullen or of Good? In the case of this individual, and that of another, of symptoms very similar, recorded by a German author, Dr. Bohnbaum, and which the translator of Laennec on Diseases of the Chest has given in a note to that work,* on the occurrence of the pulmonary hæmorrhages, the subjects were suddenly struck down and deprived of sense and motion; such cerebral symptoms identical with those of apoplexy, properly so called, were plainly caused by sudden congestion of the brain resulting from regurgitation, this latter being the natural and direct effect of the obstruction in the pulmonary circulation. Looking exclusively to the general phenomena which characterised this patient's attack at the commencement, its real nature would appear to have been a compound of asphyxia and syncope; the former having comprised, as, in fact, it necessarily always does when severe, the essential symptoms of apoplexy, namely, the sudden suspension or destruction of the functions of the brain, and the consequent sudden deprivation of the powers of locomotion. But it was not, it appears, on account of the similarity which the general symptoms of the disease under consideration, when witnessed by Laennec, might have exhibited to those of cerebral apoplexy, that that distinguished physician was induced to nominate it as he has done, but wholly in consequence of the resemblance, as he states, which he conceived the anatomical characters of the two affections bore to each other. The following are Laennec's own words:—"This lesion," speaking of pulmonary hæmorrhage, "is evidently produced by an effusion of blood in the parenchyma of the lungs, in other words, in the air-cells. From its exact resemblance to the effusion that takes place in the brain in apoplexy, I have thought the name pulmonary apoplexy very applicable to it, as it resembles, in every respect, the cerebral hæmorrhage commonly termed apoplexy."*

The diagnosis in this case, it need hardly be mentioned, was obviously not a matter attended with any difficulty. The florid arterial hue of the blood expectorated, together with the accompanying cough and dyspnœa, showed plainly enough that the disease was hæmoptysis, and that the lungs were the parts from which the hæmorrhage proceeded; and by the further aid of auscultation, we were enabled to detect the seat and precise extent of the hæmoptysical infiltration. This latter circumstance, at the same time that it was satisfactory, was also of some practical utility, as it indicated more clearly the necessity of immediately adopting an active mode of treatment; and to the manner in which, as we have seen, venesection was had recourse to, we are inclined to think the arrest and resolution of the pulmonary apoplexy were chiefly owing. The acetate of lead, by the power which it would appear to possess of inducing a disposition in the blood to coagulate, contributed something, no doubt, towards the controlling of the hæmorrhage; and the masses of polypus-like fibrine that were found in the superior and inferior venæ cavæ, and also in the adjoining chambers of the heart on dissection, might they not have been in a great degree the result of the action of this medicinal agent? Lead and iron, we will here observe, bear, to some extent, a resemblance to each other in their action on the economy;

* See Laennec on Diseases of the Chest, translation by Dr. Forbes, p. 176.

* See Laennec's work already referred to, p. 172.

both have power of more or less incrassating the blood, and of altering the tone and temper of the solids; but the action of the former substance on the solids is exactly the opposite of that of the latter. Lead, as is frequently seen in the partial palsy, which it occasions in the disease of colica pictonum, softens and decolourises in a remarkable manner the muscular structure, besides depriving it of the power of motion. But iron, as we have many opportunities of witnessing during its administration in cases of cachexy and chlorosis, at the same time that it restores the colour and improves the condition of the blood, also repairs the tone and energy of the solids, and of the entire system. It is interesting, and not a little instructive to observe, how very different from those of these two minerals are the effects upon the condition of the blood, and the general economy of mercury and iodine; both these medicinal substances, when administered for any length of time for alterative purposes, have the effect of greatly attenuating the blood, and all the more consistent fluids, and also of softening the flesh. This is peculiarly apparent during a protracted, or even in delicate constitutions, during a short and mild course of mercury; and to such effects, no doubt, it is that this medicine chiefly owes its utility and singular efficiency in freeing the circulation, in rendering it more equable and diffused, in resolving and removing tumours and obstructions, and in restoring suppressed secretions. No article of the materia medica, it is certain, possesses the power to half the extent which mercury does of attenuating the blood, and of softening and relaxing the solids; and it is in consequence of this circumstance, beneficial or baneful as in every instance of its operation it must be, that it influences so much temporarily or permanently the stamina and constitutions of individuals: sometimes, as may be seen in cases of injudiciously prolonged or of frequently-repeated alterative courses, the process of sanguification and of assimilation being perverted and impaired, the blood and fluids remain permanently ill-constituted* and thin, the flesh soft and flabby, and the strength and constitution irreparably broken down. This destructive action of mercury may, in some instances, as we have seen, be carried so far as to deprive the soft parts and even the bones in the event of fracture of the power of reparation. Under such circumstances it may be observed, that ulcers and wounds of all kinds become almost irremediably ill-conditioned and phagedenic, and the fractured bones remain ununited. Further, in cases of extreme mercurialisation it has been observed that the bones become peculiarly brittle, and from very slight causes liable to fracture, in consequence of the softening and partial absorption of the animal matter of which they are in part composed, produced by the mineral. We have witnessed a few cases illustrative of this condition of the bones; and we have heard the experienced and eminent Dr. Colles, of Dublin, some years ago lecture with much earnestness and chaste eloquence on the subject; but we are digressing into the province of the surgeon.

It is scarcely necessary to observe, that it was the inflammatory affection, the supervened peripneumony, and not the hæmorrhagic, which proved the cause of this patient's death. The latter lesion, the pulmonary apoplexy, as it has been termed, though one at all times extremely dangerous, so much so, that in every case we can find upon record it proved fatal, had been successfully combatted; and the resolution of the hæmoptysical infiltration which the dissection disclosed, had considerably progressed, would, no doubt, had the patient survived the pneumonic attack, been finally complete. It is occurrences like these, such successions or transitions more or less immediate of disease (the state of a part on the removal or modification of one malady forming the predisposition to, or constituting the actual cause of, another); and also the morbid combinations so frequently met with, which form the greatest difficulties in the practice of medicine, and render the offices of the physician often perplexing, and the application of his knowledge less certain and satisfactory than it otherwise would be. Look at the number of lesions of the respiratory organs that existed in the case under consideration. We have pulmonary hæmorrhage, pneumonia, and bronchitis; and also dilatation of the air-cells, of old standing, with asthma dependent thereon. Respecting blood-letting in the latter stages of pneumonia, we find the following observations in the celebrated work of Laennec, from which we have already made an extract, and which we here quote, for the purpose of expressing our decided dissent from some of the precepts therein advocated:—"From the time of Hippocrates to the present day," observes this eminent French author, "most medical men have regarded pneumonia as one of the diseases in which blood-letting is productive of the most striking benefit. To this general truth all good practitioners have admitted only a few general exceptions; and it has only been by some few theorists and medical heretics that its employment has been proscribed. The same uniformity of opinion, however, has not existed respecting the quantity of blood to be drawn at one time, the period of the disease when blood-letting ceases to be useful, and the part of the body where it ought to be performed. The greater number of the ancient physicians

* There is, we conceive, a constitution of the blood, as well as of the solids and general system, for which its specific gravity, perhaps, might be a sufficient medicinal test. Sydenham has spoken of the constitution of the air.

bled only at the onset of the disease, and allowed the blood to flow until syncope took place. This practice was sometimes followed even by Galen. It was much used in the century before the last. It is still very common in England; many of the physicians of that country, in the commencement of pneumonia, directed the detraction of twenty-four, thirty, or thirty-six ounces of blood. This practice is not to be found fault with; since it is certain that a copious bleeding in the beginning of the disease reduces the inflammatory orgasm much more speedily than repeated smaller venesections will do at a later period, and, moreover, leaves less chance of a renewal of the inflammation. The ancients considered bleeding as a questionable remedy after the first days of the disease, fearing thereby to check the expectoration; and the best practitioners of the two last centuries forbade this operation after the fifth day, if the discharge was mucous, and abundant. Apprehensions of this kind are not, perhaps, unreasonable, if the loss of blood is carried to syncope; but we know from experience that in a lesser degree, though still pretty copious, blood-letting may be had recourse to with much advantage in a very advanced period of pneumonia, even when this has reached the suppurative stage, and is attended with a great expectoration."* With the doctrines of the ancient and less modern physicians, in regard to the mode of employment of blood-letting in the disease of pneumonia, our experience would lead us entirely to agree; and we confess we are not a little surprised to find a different mode of practice recommended by such high authorities as those of Laennec, Andral, Cullen, &c. But no authority, be it here remarked, however eminent, shall ever cause us to reject the evidence of our own observation, and the result of our own experience, which have so repeatedly informed us that in pneumonia, whether simple or associated with more or less of bronchitis, when the cough has become easy and soft, and the discharge from the bronchi mucous and abundant, that blood-letting is not only not beneficial, but positively injurious, and too often destructive. The loss of blood in the first stage of this inflammatory disease no doubt prevents or modifies, in some degree, the extent of the effusion, and thereby acts beneficially, and fulfils the intention for which it is administered; but at a later period of the malady, as its pathology progresses, and when the expectoration has commenced, it certainly neither, as far as we have been able to discern, promotes this natural and direct depletion, nor contributes, in any appreciable degree, towards the resolution of the hardened lung. When pneumonic inflammation, in fact, has advanced to the effusion of lymph and secretion of purulent matter, no resolution, in the usual signification of the term, that is, no sudden extinction or dispersion of the disorder can take place; it must either be gradually removed by a process of absorption, or thrown off by expectoration; and, with respect to the mode of treatment, the safest and most successful, we believe, that can be pursued, is simply to support the strength of the patient by the judicious administration of nutritious diluents, to give palliatives and expectorants, and, as the case may require, to have recourse to counter-irritation, and not altogether to forget that there is a vis medicatrix naturæ.

A few remarks upon emphysema and asthmatic dyspnœa. Without pretending to such accuracy of observation as would catch the light and shade of morbid phenomena, we will here notice a few circumstances connected with respiration, both healthy and abnormal, which appear to us to have been in a measure overlooked. By the way, we will here state that the pure physiological respiratory murmur, in any work upon auscultation which we have had an opportunity of perusing, has not, according to our observation, received an accurate description, one that accords with nature. The murmur is described as being double, inspiratory, and expiratory, and similar to that of a pair of small bellows. The difference in the *intensity* of these two sounds has been noticed by all writers; but what we consider rather singular, the difference of *duration*, though to our ear very perceptible, has not been pointed out. The first or inspiratory sound, like the first or systolic sound of the heart, is in duration fully double that of the expiratory or second sound. This observation can at once be put to the test, by directing attention to the acts of respiration in one's own person. The rhythm of respiration runs thus:—First, there is the period of inspiration, which we will say occupies four-twelfths; second, the period of pause, or transition, which occupies one-twelfth; third, the period of expiration, which occupies two-twelfths, or one-half that of inspiration; and fourth, the period of repose, when the entire respiratory apparatus rests, which occupy five-twelfths, or a little more than that of inspiration.

It is interesting, and, in a practical point of view, not unimportant, perhaps, to observe how the relative duration of these actions, in paroxysms of asthmatic dyspnœa, are altered, and sometimes, as we have seen, completely reversed. Inspiration becomes brief and spasmodic, and expiration becomes so prolonged as frequently to include the usual period of repose. What practitioner has not occasionally witnessed, with the most painful anxiety, the spasmodic inspiratory gasp, succeeded by the prolonged expiratory moaning effort, when the face becomes congested and purple, and

* See p. 223 of the work of Laennec already referred to.

the system throughout is affected by transitory asphyxia. In all these cases, the great difficulty, it would seem, which the patient experiences is in the expulsion of the air from the chest, not in taking of it in; and all the respiratory powers are pressed into action to accomplish this object. Such instances of peculiar asthmatic dyspnœa only occur, we believe, in cases of excessive emphysema, accompanied by more or less of bronchitis, of which perhaps the dilated, weakened * condition of the air-cells, together with the mucous obstruction of the bronchial tubes, afford a sufficient explanation.†

We intended to have concluded with a few remarks upon the causes of pulmonary emphysema, and of pulmonary hæmorrhage and hæmoptysis, but we find that we have already extended our paper to some considerable length.

43, Sackville-street,
Dec. 28, 1841.

PUERPERAL CONVULSIONS.

To the Editor of THE LANCET.

SIR,—The case of puerperal convulsions after delivery contributed by Dr. Barry, in your Journal of the 11th ult., induces me to recur to one which I had recorded in my note-book some months ago. With the view of following up the subject of this fearful disease, and of eliciting information, I offer the following, with the accompanying observations, for insertion in the pages of THE LANCET. I am, Sir, yours obediently,

H. JEFFERY, M.R.C.S.

January, 1842.

I was called, Oct. 9, 1840, to see Mrs. White. She had been in labour about twelve hours. Mr. Pullin, who was in attendance, and who had, from the peculiarity of the case, deemed further assistance necessary, found some difficulty in the delivery, which, however, was accomplished in about half an hour after my arrival. The pains were exceedingly strong; the presentation was face; the placenta was large and fleshy, and came away in a quarter of an hour after delivery; scarcely any blood was lost; the child was born alive. The patient was out of health; her face and legs were œdematous; æt. 30.

A few minutes after the extraction of the placenta, and after Mrs. W. had taken a cup of tea, on looking round I perceived the cup dropping from her hand, and her head was being bent backward. In a minute more she was in violent convulsions: the face and lips became distended almost, apparently, to bursting, and were quite livid; the lower jaw was drawn downwards and to the side; the tongue protruded, and there was foaming at the mouth; whilst the eyes seemed starting from their sockets, and were twitched synchronously with the mouth, upwards and sideways; the body was bent back, and the limbs were rigid, the whole presenting the most frightful picture of human distortion I ever beheld.

Whilst Mr. P. waited for a ligature for the arm, I made a free incision into a branch of the temporal vein, which was then much distended; the blood flowed profusely. A vein in the arm was next opened, and the fit quickly subsided. Two pint-and-a-half basins of blood, nearly full, were taken, besides what flowed from the temporal vein, before consciousness returned, when the woman appeared quite ignorant of what had happened, and we cautiously concealed any appearance of blood from her sight. Two drops of croton oil were now given, and an injection administered. Another fit occurred in about half an hour, nearly as bad as the first, when we reopened the temporal vein, and also that in the arm. This fit soon subsided. About half an hour after this, on finding the pulse beating strong and full, the vein in the arm was again opened, and ten ounces of blood abstracted. In the evening another fit came on, which was so violent that Mr. P., who was then with her alone, again opened the vein in the arm, and took ten ounces more of blood. During the night she took two more drops of croton oil, and another injection was given, without affecting the bowels materially. At seven o'clock in the morning she had another fit, but not so violent as before. We did nothing but pour cold water on the head. Soon after this the

* Incapacitated for contraction.

† This species of dyspnœa in the human subject is similar, we imagine, to that to which the horse is liable. "In thick-wind the breathing is rapid and laborious, but the inspiration and expiration are equally so, and occupy precisely the same time. In broken-wind the inspiration is performed by one effort; the expiration by two, which is plainly to be observed by observing the flanks, and which occupies double the time. The reason of this may easily be stated. Broken-wind is the rupture or running together of some of the air-cells. When the lungs are expanded the air will rush in easily enough, and one effort of the muscles of respiration is sufficient for the purpose; but when these cells have run into each other the cavity is so irregular, and contains so many corners and blind pouches (bullæ, or interlobular emphysema), that it is exceedingly difficult to force it out again, and two efforts are scarcely competent fully to effect it."—See chap. Broken-wind, article "Horse," in the Library of Useful Knowledge.

bowels acted freely, and no untoward symptom from this period occurred. She is now (Oct. 14) doing well in every respect, save the suffering which is occasioned by having bitten her tongue severely.

The convulsions appeared to me to be caused by the great pressure on the brain (primarily), through excessive straining during parturition; secondarily, by there having been no relief subsequently through the usual partial hæmorrhage after delivery, conjoined to a peculiar state of the health and of the nervous system at the period.

I think the satisfactory termination of this case must be chiefly attributed to the promptness with which venesection was resorted to, and the quantity of blood which was taken, amounting at a moderate calculation to no less than seventy ounces in the twenty-four hours.

With respect to the method of abstracting blood in attacks of a convulsive and apoplectic character, I would remark that, as in those instances where the prevention of the rupture of a blood-vessel in the brain is possible, all depends upon the speediness with which the organ is relieved, so have I in several cases, as in the one above, and with manifest benefit, adopted a practice by which this object can be partially obtained before the preparations for bleeding at the arm can be completed; I allude to the opening of a branch of the temporal vein.

To those to whom this resource may not be familiar, I would venture to draw their attention to it. In the hurry and consternation which pervade the attendants on any sudden attack of convulsive or apoplectic fits, many minutes, at least, generally elapse ere a ligature for the arm can be obtained, and the surgeon use his lancet. During this time a fatal lesion may have taken place in the brain, whilst the frontal branch of the temporal vein, which is seen curled and distended about the superior and external part of the orbit, presents a convenient and suitable point for the abstraction of blood. From almost all fits it is in the head that danger is to be most dreaded, and it appears to me to be the most rational as well as beneficial practice to take blood (when it is requisite) from as near the organ threatened as possible. The temporal vein, when opened during a fit, pours forth a full stream of nearly black blood, and during the paroxysms it is peculiarly seen (as it was in the case above related) to act like a sluice at every struggle, and does, as I believe, contribute very much to prevent any fatal distention or rupture of the blood-vessels of the brain.

I question also whether it be not possible that during a fit the power of sufferance in the vessels of the head on the one hand, and the pressure caused by muscular convulsion on the other, may not chance to be so evenly balanced, that the very act of tying up the arm (from the fact that whilst the ligature compresses the vein, it may compress the artery also) might in some cases contribute to the very result which it was intended to prevent, viz., apoplexy.

ON THE USE OF

GOLD-DUST AND IRON-FILINGS

AS A GALVANIC ANTIDOTE TO

CORROSIVE SUBLIMATE,

AND ALL THE OTHER POISONOUS

COMPOUNDS OF MERCURY.

By T. H. Buckler, M.D., of Baltimore.

The compounds of mercury being, without exception, more or less poisonous, it would seem that the only single method of rendering them innocuous is to revive the metallic mercury, and thus separate it from the agents with which it is combined. Of all the compounds of mercury, corrosive sublimate—*bichloride of mercury, oxymuriate, corrosive muriate*—is the one for which it is most desirable to procure a suitable antidote. This agent, possessing so wide a range of chemical affinities, has baffled chemists for a long time in their efforts to decompose it in the stomach. The difficulty has arisen, of course, from the more or less poisonous nature of all its compounds. The inutility of seeking an antidote to an agent so deadly in its effects, may be urged by many, although it is not a more powerful irritant than oxalic acid, for which latter we have a ready and certain antidote. Even the observations that have been made on poisoning with prussic acid have been productive of practical advantage.

The importance of having a suitable antidote to corrosive sublimate is growing daily more apparent; for, setting aside the resorts to it for suicidal attempts, and its universal employment in destroying insects, it has been introduced of late in tanning, and to prevent the decay of timber; thus exposing numerous operatives to the accident of swallowing it. Even a familiar acquaintance with its deadly nature is not always a guarantee against the risk. Thenard, the chemist, while at lecture, swallowed a concentrated solution, in place of water, but discovered his mistake before he had taken enough to prove fatal. A druggist of our city, inadvertently took from his counter a lump of the bichloride and swallowed it. He had eaten a full meal a short time before, and on taking an emetic of sulphate of zinc, the piece was instantly rejected. Numerous agents have been suggested to render this salt innocuous. The only antidotes now recognised are gluten and albumen; suggested by Taddei of Florence, and Orfila. Each promised to be perfect, when announced; but that of Orfila, for many reasons the best,

is now the established antidote. Recent investigations have shown that albumen is not so certain in its action as was at first supposed, the precipitate which it forms being redissolved when the albumen exists in excess. We could not in the hurry of administering albumen give just so much as would neutralise the solution. Albumen acts by converting the bichloride into calomel, which renders the patient liable to be salivated; an evil in itself. Besides, toxicologists number calomel amongst the compounds of mercury for which it is desirable to procure an antidote. Perhaps, even, corrosive sublimate is not more active in its affinity for albumen than for the mucous membrane of the stomach.

A young gentleman, of robust health, had swallowed, with suicidal intent, three ounces and a half of a saturated solution (about fifty-five grains), of corrosive sublimate. Eggs were at hand, and ten minutes had not elapsed from the poisoning when we gave him at least a quart of a solution of albumen, and continued to administer it for some hours. The symptoms were most violent. One circumstance, however, shows the weight of the objections above stated:—The bowels were not acted on until nearly three hours after the solution was swallowed (ample time, we should think, for the affinities of the mercury to have been supplied by the albumen), and yet, when the dejections did take place, they contained so much mercury in solution, that the skin surrounding the anus was excoriated, precisely as if a strong solution had been directly applied. In spite of the albumen, which was largely administered, the corrosive action was exerted on the mucous membrane of the stomach and bowels for eight hours, producing, during the whole of that time, the most excruciating agony. So soon, however, as the chemical action was at an end, there was comparative calmness and freedom from pain. He died on the eighth day. Had we possessed some agent capable of decomposing the solution within the first half hour, his chance of recovery might have been good.

With the hope of fulfilling this indication, we have made the following experiments. The agents are iron-filings and gold-dust; and their action is referrible solely to galvanism. Place a drop of a solution of corrosive sublimate on a polished piece of gold or iron, the surface will remain bright for a long time, unless we bring the iron and gold in contact, through the solution, when both metals become instantly tarnished, the iron oxidised, and the gold coated with metallic quicksilver. If we drop into a solution of mercury a polished card-tooth,* to which we have caused particles of gold to adhere, it will become tarnished the moment it comes in contact with the fluid, and a globule of quicksilver, combined with the gold, may be seen hanging to it, as it falls to the bottom of the solution. If we throw gold-dust into a solution of mercury, no action will take place until we add iron-filings, when the metallic mercury is at once revived, and will be seen to precipitate, in a state of amalgam, with the gold; at the same time the oxygen from the corrosive sublimate goes over to the iron, and forms an oxide of that metal, with which the chlorine combines, leaving a hydrochlorate of iron in solution. The products of this decomposition are wholly innocuous, the amalgam of the two metals being entirely inert, and the hydrochlorate of iron possessing only the properties of a slight tonic. Two grains of gold and two of iron are sufficient to decompose five grains of corrosive sublimate, so that no trace of mercury can be detected by the most delicate tests.

In order to ensure a rapid decomposition of the salts of mercury, it is important that both metals should be in the minutest state of division. The iron we used was reduced almost to an impalpable powder, by working a piece of steel with the finest file. The gold can be procured at all times, in the state of bronze;* but as this is liable to impurities, it is better to have it powdered expressly, in the ordinary way, or by filing. Gold-leaf may also be used. Both metals should be so minutely divided, as to be capable of suspension for a short time, in any fluid, and form, when agitated in water, as it were, a gold-and-iron solution. For it is by the galvanic action excited at the moment that each particle of the one metal comes in contact with a particle of the other, that the corrosive fluid immediately surrounding them is decomposed; and hence, in order to render rapidly innocuous a considerable bulk of a solution of corrosive sublimate, it is important that both metals should be as widely and intimately diffused in it as possible.

This method applies to all the more soluble compounds of mercury. The deuto-iodide of mercury in water is instantly deprived of its bright vermilion lustre, on the addition of gold and iron, and a grey precipitate, composed of an insoluble iodate of iron, and an amalgam of gold and quicksilver, is the result. If we take the peroxide of mercury (red precipitate, red oxide of mercury), and throw in gold and iron-filings, the oxygen of the precipitate instantly passes over to form a peroxide of iron, while the revived quicksilver amalgamates with the gold. So, like-

* Probably by this term the author means the piece of smooth curved iron (sometimes a tooth, sometimes agate) which card-polishers and bookbinders employ.—Ed. L.

* This must refer to the finely-powdered gold which is kept prepared for producing on the surface of certain manufactured articles the appearance of bronze.—Ed. L.

wise, the proto-nitrate and acetate of mercury, when similarly treated, form, severally, a nitrate and an acetate of iron, while the metallic mercury, being revived, combines, of course, with the gold.

The more insoluble compounds of mercury are not so readily decomposed by gold and iron; but they all of them act more slowly on animal issues. These compounds are, cinnabar (*bisulphuret* or *vermilion*), turbith mineral (or *sub-bisulphate*), white precipitate (or *hydrargyrum ammoniacum* of the Pharmacopœia). Amongst them calomel may also be classed. Moreover, before any of the above-named substances can prove deleterious, some soluble salt must be formed by the action of the stomach, which, when formed, instead of acting on the coats of the stomach, will be decomposed by the presence of gold and iron. We intended to make a number of experiments on animals, aided by Professor Fisher, but owing to the illness of that gentleman our plan was defeated. However, to ascertain how far the proposed antidote could be depended on, we procured four half-grown rabbits, on which the following experiments were performed, assisted by Mr. Stewart, one of the ablest chemists of our city:—

Experiment 1st. Injected into the stomach one grain of the peroxide of mercury, in 3ii of water, and, shortly after, five grains of iron-filings, and the same quantity of gold-dust, in half an ounce of water. No pain or distress. Ate shortly after, and has not since appeared the least sick.

Experiment 2nd. Gave to another rabbit three grains of the deuto-iodide of mercury, in ℥ss of water, and used gold-dust and iron-filings, of each six grains. Result the same. This rabbit is now thriving.

Experiment 3rd. Injected into the stomach three grains of the white oxide of mercury, and, some minutes after, administered four grains of finely-divided gold and five of iron-filings. Perfectly well until the next day, when it seemed drooping. On the third day it ate, and is now perfectly well.

Experiment 4th. Injected into the stomach of the last rabbit four grains of corrosive sublimate, in ℥ss of water, and used as the antidote, four grains of gold-dust and six of iron-filings, in ℥ss of water. Ate shortly afterwards; no distress; now perfectly well.

In all a small quantity of gum was added to the antidote, to suspend the metals. As gold and iron in minute division might themselves have proved fatal in our first experiment, only one grain of the peroxide of mercury was given; a quantity insufficient to produce death, and yet calculated to cause great distress, or loss of appetite. It appeared to be conclusive from this trial, that gold and iron exert no deleterious effect, and also that the peroxide must have been decomposed. We believe that one grain of the deuto-iodide of mercury would be sufficient to kill a rabbit. Distress is often occasioned where it is administered medicinally, in doses of one-eighth of a grain; and yet, in our second experiment, three grains were given, without sensible effect.

We have observed that gold and iron do not decompose the more insoluble compounds of mercury *out* of the stomach. The effect of those metals in our third experiment, in which three grains of the white oxide of mercury were given, may, however, be explained by the phenomena which occur in one method of making hydriodate of potash. Iodine and potash may remain in water without forming the above salt, unless a piece of iron be dropped in, when a play of affinities is at once aroused, and the iodine, leaving the iron, for which it has a powerful affinity, untouched, combines instantly with the potash. Now, a part analogous to that which the iron here plays is performed by the stomach, when the insoluble compounds of mercury are swallowed, and gold and iron are, at the same time, present; the stomach forms, out of the insoluble compound, a soluble salt, which, instead of acting on the coats of that organ, is instantly decomposed by the antidote, the stomach, in every instance, being the medium, like the iron in the case of the iodine and potash, by which the affinities are brought into play.

Experiments have proved that a solution of six to twenty grains of corrosive sublimate in the stomach of a full-grown rabbit very soon produces difficult respiration, convulsions, and death. In our fourth experiment, therefore, on a half-grown rabbit, death must have ensued, unless the gold and iron had been given.

A solution of corrosive sublimate acts purely as an *irritant* or as a *caustic*, accordingly as a weak or a strong solution is swallowed. Between the irritant and the caustic strength of a mercurial solution, we deem it of the greatest importance to notice the difference. A solution, in its *caustic* strength, will produce an irrecoverable condition in a few minutes; whereas a solution only *irritating* in its effect, may remain for a greater time, without producing any fatal lesion. For example: we applied a saturated solution of corrosive sublimate to a blistered surface; it produced the most excruciating torment, and on examining the surface some hours after, the true skin had lost its vitality, in patches, which presented a white, polished, and shining appearance. At about the third day, all the parts which had assumed the character described, were found separated at their margins from the healthy skin, by a clearly-defined fissure, and between the sixth and tenth days they came away, leaving healthy ulcers, with perpendicular walls, corresponding exactly with the thickness of the skin in depth. These sores healed up in a few days by granulations

from their bases. On the contrary, if we apply a weaker solution (ten grains to the ounce) to a blistered surface, it produces an acute burning pain, and the true skin will afterwards be found inflamed, but no lesion will have taken place. With these facts before us, it would seem proper in all cases where a saturated solution has been swallowed, to give a quantity of water sufficient to dilute the solution, and destroy its caustic action, which, if not instantly arrested, must render death inevitable. This gives time to procure the antidote, having in the after-treatment simple inflammation of the mucous coat of the stomach to contend with. But the mercurial solution is not less fatal if time be lost in decomposing it. A gentleman, at one of our hotels, ordered a glass of cider, in swallowing the first mouthful of which he was warned by the taste that he had taken something wrong; in a few minutes burning pain in the stomach and along the œsophagus ensued, and it was found that a saturated solution of corrosive sublimate, in whiskey, had been taken. Albumen was freely administered, but death ensued on the third day. A servant, after using the solution in cleansing bedsteads, had heedlessly placed the bottle where the cider was kept. Now, in all such cases it would be proper to administer, *immediately*, a draught of water sufficient to destroy the caustic properties, and then give the antidote. The proposed antidote should be kept by the druggists in papers, containing each,

Finely-divided gold,

——————— *iron*, aa, ℈ii;

Gum acacia, ʒss. M.

free from dampness, to prevent oxidation of the iron. In poisoning with any compound of mercury, one powder is to be stirred in a tumbler of water, and swallowed; if any of it is rejected, another powder should be given. If a solution of mercury were swallowed, we could not expect much benefit to arise from the use of gold and iron, in any other state than that of dust. In case of poisoning with the insoluble compounds of mercury, if the dust cannot be obtained, then use the metals in the form of beads, fine chains, or any other shape in which they can be swallowed, for we believe that they would decompose the soluble salt with as much rapidity, at least, as it could be formed in the stomach.

We invite the attention of others to the subject; intending, however, ourselves, to renew the experiments already made.

MEDICAL SUCCESS.

The following paragraph from the *Canterbury Journal*, on "Medical Success," we think deserving of a place in our columns, and with that feeling we present it to our readers:—

"*Medical ability* does not, of necessity, *insure* medical success; for often do we see the most talented practitioner in a neighbourhood the most neglected. *Good luck* does not *insure* medical success; for as frequently, we observe, *the oftener the bell tolls* the more the medical attendant is talked of and *sought after!* In what, then, does medical success consist? In tact? In impudence? In making every case *an extreme one?* In paying an *early* and *late* visit, where *one* would be sufficient? In being *too busy* to make out bills, or to send the medicines? Certainly in none of these; for if a medical practitioner should, by any such means, get *a name* above his fellow-labourers, he must inevitably go down again. Medical success, in a country town, is dependent upon a general knowledge of the irksome and arduous duties of the profession; regular habits; temperance and sobriety; upon hard work; perseverance; kindness to the poor; and, above all, upon having, for at least twenty years, attended with success a large number of women in their accouchement, from the poorest to the richest in the parish.

"This, then, is the '*key to practice*,' and this only will *insure* medical success, in the long run. It is a hard hill to climb up; but once there, it is the medical man's own fault if he loses his rightful position by the machinations of a schemer or a charlatan."

French Origin of the Operation for Strabismus?—At the séance of the French Academy of Medicine for the 14th of September, ult., M. Velpeau read the following extract from the "Précis Analytiques des Travaux de l'Académie de Rouen." After describing a magnificent surgical pedlar, the writer states, "The great operation, the most marvellous of all was that by which he proposed to straighten squinting eyes. With a needle charged with silk, he took up a portion of the conjunctiva of the affected eye on the inferior phase of the ball; and having made a loop of this silk, he was wont to pull towards himself the portion of conjunctiva which he had seized, and cut it with scissors; after that, he placed a plaster over the sound eye. The squinting eye was cured. In answer to a question put by the writer of the account, the mountebank replied, "that squinting arose when the equilibrium of the muscles was destroyed. To restore this equilibrium, it was but necessary to enfeeble the muscle which overpowered the others; and this purpose was effected by dividing one of the nervous filaments which supplied the too powerful muscle." This occurred at Rouen in 1743.—*Bulletin de l'Academie.* France is entitled to all the honour that may be deduced from this loose account.

COMPARISONS

OF THE

MORTALITY IN ENGLAND AND WALES

IN THE YEARS 1838-39-40,

WITH AN

ENUMERATION OF THE FATAL DISEASES.

THE following summary is from the pen of Mr. WILLIAM FARR, of the office of the Registrar-General of Deaths, Somerset House, and contains a larger amount of interesting and laboriously-collated announcements than was probably ever before made in a national document within the same compass. The alleged facts are admirably summed, and, could we feel assured, from the fitness of the registrars themselves, generally, and the care, diligence, and accuracy with which they execute their duties, that we have here the positive facts relating to the fatal diseases which the machinery of the office is designed to obtain, the paper would also demand to be regarded as quite invaluable in its relation to the public health. In a moment it will be seen that on the fidelity of the registrars, and the truth of the *causes* returned by them in relation to the deaths, depends the real worth of a very large portion of the statements. The letter of Mr. FARR from which they are taken is addressed to the Registrar-General, extending to 28 pages folio, closed with 146 folio of illustrative tables, and contained in the "Third Annual Report of the Registrar-General of Births, Deaths, and Marriages," issued from the printer's at the close of the last month :—

The deaths in the year 1839 were not so numerous as in 1838; but the number of cases in which the causes were specified, scarcely differed in the two years.

In 1838 the causes of 330,559 deaths were stated.
1839 „ 330,497 „

The coincidence arises from the cause of death having been more generally registered in 1839, for the total number of deaths in that year was 3550 less than occurred in 1838.

In 1838 the deaths were 342,529; the causes of 11,970 were not specified.
1839 „ 338,979; „ 8,482 „

It will be found, after making the corrections explained in your last report for the increase of the population, that the mortality was lower than in 1838. The two great epidemics of small-pox and typhus were on the decline; and the winter was mild, compared with the severe season of 1838.

The annual rate of mortality was—

Year.	Males.	Females.	Mean of the Two Sexes.
1838	2.28	2.12	2.20 per cent.
1839	2.23	2.07	2.15 „

The diminution in the mortality was 2.4 per cent. among males, and 2.6 per cent. among females, or exactly 2½ per cent. in the two sexes; and it would probably have been more considerable had not the class of causes adverted to in your report come into partial operation in the two last quarters of 1839, though their more fatal effects did not begin to manifest themselves until 1840. This will be evident from a comparative statement of the deaths in the four quarters of the years ending—

	March.	June.	September.	December.
1838	98,114	90,810	72,791	80,816
1839	89,739	87,965	76,280	84,995

I shall have another opportunity of examining the influence of the seasons, and the prevalence of epidemics. The facts already adduced will show why the mortality in 1839 was lower than the mortality of the preceding year, with an extremely cold winter, and than the mortality of 1840, when distress prevailed in certain populous districts of the kingdom.

It was proved from the abstracts of 1838, that certain causes of death affected the sexes to a very different extent. The same facts were observed in 1839; and the diseases which were cited in the last report, with some additions, will serve again as examples.

CAUSES OF DEATH.	NUMBER OF DEATHS.			
	1838.		1839.	
	Males.	Females.	Males.	Females.
Cancer	620	1,828	660	2,031
Hooping-cough	4,036	5,071	3,683	4,482
Consumption	27,935	31,090	28,106	31,453
Childbirth	..	2,811	..	2,915
Violent Deaths	8,359	3,368	8,325	3,307
Hydrocephalus	4,242	3,430	4,313	3,436
Diabetes	152	55	151	63
Convulsions	14,549	11,498	14,245	11,163
Delirium Tremens	167	15	184	22
Tetanus	100	29	102	20
Bronchitis	1,193	874	916	747
Pleurisy	329	253	342	246
Pneumonia	9,887	8,112	10,000	8,151
Asthma	3,359	2,386	3,092	2,091
Pericarditis	74	50	83	52
Aneurism	88	31	69	33
Hernia	318	189	299	175
Fistula	82	18	81	22
Stone	282	38	274	25
Cystitis	103	25	118	20
Nephritis	113	44	99	32
Gout	161	46	170	45
Dropsy	5,170	7,172	5,268	6,983
Intemperance	125	36	178	40
Starvation by Want, Cold, &c.	126	41	85	45

Hooping-cough is an epidemic disease, and was less fatal in 1838 than in 1839; but the deaths from it of males and females were in nearly the same proportions. The agreement between the number of deaths from other causes—less liable to fluctuations—is remarkable.

The excess in the males who die violent deaths is to be ascribed to the dangerous nature of many of their occupations. The greater fatality to males of bronchitis, pleurisy, pneumonia, asthma, and some other diseases, will be perhaps justly considered due to exposure to the inclemencies of the weather. More boys than girls, however, die of pneumonia under one year of age, when this cause can have no influence. The differences of structure may explain the excess of deaths among males from hernia, stone, cystitis, nephritis, and, perhaps, from carcinoma. Intemperance, delirium tremens, gout, suicide, and almost all the causes of death which are the consequences of irregularities, vices, or crimes, are less fatal to women than to men.

The rates of mortality from each particular cause have been calculated in the manner described in the appendix to the last report, to which I refer as well for this, as for explanations and qualifications of some of the terms, to avoid unnecessary repetition. It will be recollected that in all the calculations a correction is made for the increase of the population, and that the 8482 deaths, in which the cause was not specified, are assumed to have happened in the same way as the 330,497 in which the causes were registered.

The number of deaths from the class of *epidemic, endemic, and contagious diseases*, was 65,343; and the mean rate of mortality per 1000 by the class was 4.25; in 1838 it was 4.52. The decrease was in small-pox and typhus, 16,268 persons having died of small-pox in 1838, and 9131 in 1839; 18,775 of typhus in 1838, and 15,666 in 1839. On the other hand, 6514 children died of measles, and 5802 of scarlatina, in 1838; while 10,937 died of measles, and 10,325 of scarlatina, in 1839. Hooping-cough declined. Croup, thrush, diarrhœa, dysentery, cholera, influenza, and erysipelas remained stationary; none of them assumed the epidemic form. Ague rose from 44 to 95. In 1838, 16 males and 8 females died of hydrophobia; in 1839, 11 males and 4 females perished in the same way. Out of a population of 100,000 of each sex, 432 males and 418 females died of the epidemic class of diseases; but when the comparison is instituted between the deaths alone the proportions are reversed; in 100,000 deaths of

males, 19,368, and in 100,000 deaths of females, 20,189 were from the same class of diseases.

The mortality from diseases of the *nervous system* was 3.2 in a population of 1000 (500 of each sex); in 1838 the mortality by every disease of this class, except epilepsy, insanity, and delirium tremens, was higher. From an accidental circumstance too many deaths are ascribed to chorea in the present abstracts; the proportions were very nearly the same as in 1838. The diseases of the nervous system were 25 per cent. more fatal to males than to females, the rate of mortality among males having been 3.6, among females 2.8, in 1000,

90,565 persons died by diseases of the *respiratory organs*; the class comprises 27 per cent. of the deaths; and 59,559, or 18 per cent. of the deaths, the causes of which are specified, were by consumption. At the adult age, when consumption chiefly prevails, the numbers of men and women living are nearly equal, yet 31,453 females and 28,106 males died of this disease. The annual rate of mortality by consumption was, males .003722, females .004015; in 1838 it was—males .003783, females .004077, denoting a slight decrease, which was more obvious in the other diseases of the class. 659 deaths were ascribed to quinsey. This augmentation in the inflammatory affections of the throat was probably connected with the epidemic of scarlatina.

The number of cases registered as *diseases of the heart*, or of the *organs of circulation*, increased from 3562 to 3788.

20,767 persons are returned as having died by diseases of the digestive organs, namely, 3990 by diseases of the liver, 29 by diseases of the spleen, 4 by diseases of the pancreas, and 16,744 by diseases of the stomach and intestines. The mortality from this class was 1.351 in 1000; it was 1.287 in the year preceding. If we add the deaths from thrush (1019), diarrhœa (2562), dysentery (537), and cholera (394), to this class, it will make 25,279, which is to the deaths by diseases of the respiratory organs (90,565), after adding to them 8165 deaths by hooping-cough, 4192 by croup, and 887 by influenza, nearly in the proportion of 1 to 4.

Diseases of the skin and *integumentary system* destroyed 420 persons in 1838, and 448 in 1839. The exanthematous fevers, with eruptions on the skin—small-pox, measles, scarlatina, and erysipelas—proved fatal to 29,787 persons in 1838, and 31,533 in 1839; when half the number (15,666) died of typhus, which is generally accompanied by rose spots upon the skin, petechiæ, or ulcerations of the intestinal glands of Peyer.

1275 males, and 259 females, died of diseases of the urinary organs: the rate of mortality was, males 169, females 33, in 1,000,000.

Childbirth was fatal to 2915 women; out of 1,000,000 females living, 368 died by this cause in 1838, and 372 in 1839. About five births in 1000 are fatal to the mother. It is to be regretted that no sign of diminution is perceptible in this class of deaths.

Diseases of the *joints, bones, and muscles*, destroyed 1098 males, and 922 females. White swelling, lumbar abscess, and other scrofulous affections, constituted a considerable number of the cases.

The deaths registered as "inflammation," without any specification of the part affected, amounted to 5816 in 1838, and 4940 in 1839. The decrease denotes an improvement in the registration, for the term is vague and highly objectionable. If the existence of inflammation has been ascertained, the part affected must be known, and should be stated. The mortality from dropsy and hæmorrhage was less, from cancer greater, than in 1838. The head "Debility" comprises premature births, and the cases of infants who died within a few hours after birth without any very apparent cause. Our knowledge of the diseases of infants, and of old people, is still imperfect; and, it is exceedingly probable that as the science of pathology advances, the deaths from "debility" and "old age," which amounted in 1830 to 15,143 and 35,063, will undergo considerable diminution.

The following is a comparative view of the number of deaths in 1838 and 1839, from the diseases classified according to their pathological characters.

CAUSES OF DEATH.	1838.			1839.		
	Males.	Females.	Total.	Total.	Males.	Females.
Inflammations	20,003	16,796	36,799	36,562	19,724	16,838
Specific Inflammations	42,723	42,783	85,506	82,511	40,762	41,749
Terminations of Inflammations	9,043	10,079	19,122	18,448	8,735	9,713
Hæmorrhages or Congestions	8,001	7,124	15,125	15,251	8,223	7,028
Carcinomatous Diseases	761	2,060	2,821	3,065	788	2,277
Scrofulous Diseases	28,907	31,961	60,868	61,416	29,165	32,251
Morbid Secretions	1,228	1,028	2,256	2,288	1,273	1,015
Depraved Nutrition	1,366	1,146	2,512	2,704	1,452	1,252
Disorders of the Nervous System	24,528	20,245	44,773	47,462	26,210	21,252

Area in Square Miles.	Population according to Census of 1831.	Families in 1831.			
		Employed chiefly in Agriculture.	Chiefly in Trade, Manufactures, and Handicraft.	Other Families.	Total.
57,814	13,897,187	834,543	1,227,614	849,717	2,911,874

	Diseases.	Males.	Females.	Total.
Epidemic, Endemic, and Contagious Diseases..	Small-pox	4824	4307	9131
	Measles.....	5536	5401	10,937
	Scarlatina	5095	5230	10,325
	Hooping-cough ..	3683	4482	8165
	Croup	2223	1969	4192
	Thrush	531	488	1019
	Diarrhœa	1369	1193	2562
	Dysentery	297	240	537
	Cholera	225	169	394
	Influenza.....	435	452	887
	Ague	57	38	95
	Remittent Fever ..	65	71	136
	Typhus	7643	8023	15,666
	Erysipelas.....	550	590	1140
	Syphilis	57	85	142
	Hydrophobia	11	4	15
	Total	32,601	32,742	65,343
SPORADIC DISEASES :— Of the Nervous System.	Cephalitis	1279	1089	2368
	Hydrocephalus ..	4313	3436	7749
	Apoplexy	2809	2484	5293
	Paralysis	2309	2601	4910
	Convulsions	14,245	11,163	25,408
	Tetanus	102	20	122
	Chorea.....	23	31	54
	Epilepsy	638	548	1186
	Insanity.....	226	198	424
	Delirium Tremens	184	22	206
	Disease	825	670	1495
	Total	26,953	22,262	49,215

	Diseases.	Males.	Females.	Total.
SPORADIC DISEASES :— Of the Urinary Organs.	Nephritis	99	32	131
	Ischuria	107	9	116
	Diabetes	151	63	214
	Cystitis	118	20	138
	Stone	274	25	299
	Stricture	28	2	30
	Disease	498	108	606
	Total	1275	259	1534
Of the Organs of Generation.	Childbed	..	2915	2915
	Paramenia	..	86	86
	Ovarian Dropsy..	..	34	34
	Disease	38	339	377
	Total	38	3374	3412
Of the Organs of Locomotion.	Arthritis	21	15	36
	Rheumatism	457	489	946
	Disease	620	418	1038
	Total	1098	922	2020
Of the Integumentary System.	Carbuncle	27	11	38
	Phlegmon	59	23	82
	Ulcer	74	61	135
	Fistula.....	81	22	103
	Disease	52	38	90
	Total	293	155	448

	Total	26,953	22,262	49,215

	Total	293	155	448

Of the Respiratory Organs.	Laryngitis.....	40	22	62
	Quinsey.....	353	306	659
	Bronchitis.....	916	747	1663
	Pleurisy	342	246	588
	Pneumonia	10,000	8151	18,151
	Hydrothorax.....	1199	950	2149
	Asthma	3092	2091	5183
	Consumption	28,106	31,453	59,559
	Disease.....	1465	1086	2551
	Total	45,513	45,052	90,565
Of the Organs of Circulation.	Pericarditis	83	52	135
	Aneurism	69	33	102
	Disease.....	1969	1582	3551
	Total	2121	1667	3788
Of the Digestive Organs. — Intestinal Canal.	Teething	2614	2402	5016
	Gastritis-Enteritis	3234	3290	6524
	Peritonitis.....	68	115	183
	Tabes Mesenterica	380	326	706
	Worms.....	342	431	773
	Ascites.....	70	50	120
	Ulceration.....	182	165	347
	Hernia.....	299	175	474
	Colic or Ileus....	345	292	637
	Intus-susception..	59	53	112
	Stricture	77	55	132
	Hæmatemesis....	52	46	98
	Disease.....	814	808	1622
Pancreas	Disease.....	3	1	4
Liver	Hepatitis.....	234	194	428
	Jaundice	399	401	800
	Disease	1518	1244	2762
Spleen	Disease	17	12	29
	Total	10,707	10,060	20,767

Of uncertai Seat.	Inflammation	2579	2361	4940
	Hæmorrhage	658	388	1046
	Dropsy	5268	6983	12,251
	Abscess	628	456	1084
	Mortification.....	724	590	1314
	Purpura	65	36	101
	Scrofula.....	679	472	1151
	Carcinoma	660	2031	2691
	Tumour.....	128	246	374
	Gout	170	45	215
	Atrophy	1069	1073	2142
	Debility	8260	6883	15,143
	Malformations ...	120	94	214
	Sudden Deaths...	2257	1439	3696
	Total	23,265	23,097	46,362
	Old Age.....	15,869	19,194	35,063
Deaths ascribed to External Causes, or to Violence.	Intemperance....	178	40	218
	Starvation	85	45	130
	Violent Deaths...	8325	3307	11,632
	Total	8588	3392	11,980
Causes not specified.....		4445	4037	8482
Total.....		172,766	166,213	338,979

M. MALGAIGNE
ON
STRANGULATED HERNIA.

GENERAL INADMISSIBILITY OF THE OPERATION, AND COMMENTS UPON THE DOCTRINE OF BOYER.

It is necessary here that I attack the doctrine and practice of Boyer, since it is the object of this memoir to substitute for it a doctrine and a practice altogether different.

Boyer says, "strangulation consists in a complete or nearly complete interception of the course of the fæcal matters; an interception which results from the impossibility of reducing the hernia, and which produces grave consequences." This definition is false, even in the point of view taken by Boyer himself, because he leaves out of consideration omental hernia.

According to Boyer, there are but two sorts of strangulation; one with inflammation, and one with simple obstruction.

Strangulation with simple obstruction is occasioned by a greater or less accumulation of excrements of different consistence in the hernia. "The fæcal matters," says Boyer, "are amassed so much the more easily in the angle of the displaced intestine, because it is no longer sustained in its action by the alternate pressure of the diaphragm and the abdominal muscles; the excrements do not meet with so much resistance in penetrating the sac as in going out. It has been almost universally remarked, that in old hernias there is a considerable accumulation of fæces."

"All this is specious in theory, but entirely inconsistent with facts. I have observed in the living subject more than three thousand hernias; I have recorded several hundred cases; I have made a great number of autopsies at the Bicêtre."

M. Malgaigne relates *four* cases out of the great number seen by him, in which no collection of fæces existed in the hernia. Of these we select one as a sufficient example.

An old man, named Pierrot, was brought to the Amphitheatre the 25th April, 1840; he carried in the left half of the scrotum a hernia as large as two fists. In dissecting it with care, we found it enveloped by four dense and distinct membranes; the first appearing to be the fascia superficialis; the second, the dartos united to the fibrous expansion of the obliquus externus; the third, furnished by the cellular tissue of the obliquus internus (it was impossible to find any vestige of the cremaster); the fourth covering consisted of the fascia transversalis. All these envelopes were traversed on their posterior sides by vessels of some size proceeding from above downwards. The transverse muscle was some distance above the ring, and had no direct relation with the hernia.

The peritoneum being opened above the tumour, we drew from the tumour three feet of small intestine, comprising the inferior part of the ileum, to within a short distance of the cæcum. There was no epiploon and no adhesions. The hernia occupied the tunica vaginalis, and rested on the testicle, which was atrophied. The bottom of the sac was dense and solid, presenting on its serous surface bands and cicatrices of a white and quasi-cartilaginous tissue; the inguinal canal had disappeared, the two orifices having grown together. The external ring was excessively dilated, and seemed to have been drawn down in the shape of a funnel upon the tumour. The neck of the sac presented no thickening or narrowing; its circumference, at the most narrow part, amounted to eighteen centimetres, whilst a riband which embraced but did not close the portion of intestine which passed through this neck was only fourteen centimetres. Finally, the intestine contained only soft matters, which were as thin as in any other part of the intestines.

In the majority of living instances seen by M. Malgaigne the hernia was without accumulation, and even after a copious repast the tumour, if percussed, resounded like a drum.

"I must here remark upon a strange oversight of our theorists. Obstruction proceeds from the accumulation of hardened excrements, and yet the majority of hernias, great or small, are formed of small intestine in which there are no excrements, nor, above all, any hard matters; they have been deceived by the hardness of certain irreducible hernias; and I have seen this error committed, when the application of M. Piorry's plessimètre would have elucidated the case."

"But even if the great intestine were engaged in the hernia, would not it make an accumulation of excrements? Nothing more natural at first sight; nevertheless, after a careful search of two years in books and memoirs, I have met with but one example, and that related by M. Goyraud in the 'Presse Medicale.' In my private practice and at the hospital I have not been more fortunate, although I have had many cases of hernia of the large intestine."

M. Malgaigne supplies a voluminous history of a case in which a double scrotal hernia existed, and which contained knuckles of large and of small intestines without any accumulation whatsoever.

"The sac of the left hernia contained a knuckled portion of small intestine, which was three feet in length; and in advance of this, a portion of large intestine which contained nothing but gas, without a single scybala."

"The right hernial sac contained a loop of intestine nine inches long, and in it we found only one piece of excrement as large as a pigeon's egg. The hernia passed on the inner side of the epigastric artery."

A host of cases similar to this might be related, and confirm the truth of the proposition that these accumulations are scarcely ever met with.

Boyer continues thus:—"This mass of matters, when moderate in size, when the herniary opening and the neck of the sac have much bulk, produce colic and flatulence only; but when it is considerable, and the tumour is constricted at its base, and has an opening of small diameter, then it results in a strangulation, or a complete stoppage of the course of the fæces."

All this is ingeniously stated, but a little further on Boyer contradicts himself as follows:—"The strangulation by obstruction occurs in hernias which are old and voluminous, which are never reduced, or only reduced at night when the patients lie down, and descend in the morning when they rise; and in these, consequently, the opening which gives issue to the parts, has acquired, by degrees, a considerable dilatation." At one time he describes *the opening as of small extent*; at another, a *considerable dilatation* as existing. At one time the large aperture only gives rise to colics and *borborygmes*; now it produces strangulation.

"Further," according to Boyer, "the symptoms of this species of strangulation *always* show themselves slowly." This is its ordinary history; but, sometimes inflammation supervening, consequences as vivid and pressing as any in inflammatory strangulation occur.

In obturated and inflammatory strangulation, the taxis, bleeding, warm-baths, &c., according to the degree of urgency of the symptoms, are practised; but if the symptoms augment, the operation is resorted to.

Boyer again. "In subjects far advanced in age and feeble, the operation ought to be done in the three or four first days after the accident, though the symptoms may not have increased, and the nature of the strangulation would permit delay." "The operation for hernia *is not dangerous in itself, and it succeeds almost always when done before the parts become inflamed; and when the issue is unfavourable, the death of the patient ought to be attributed to the inflammation and the gangrene of the intestine, rather than to the operation.*"

The operation is really more fatal than lithotomy. Boyer is not alone guilty of this rash assertion as to the innocence of this operation. "Pott affirms that out of fifty operations, one would not be lost if the operation be performed ably and in due time; and Pelletan asserts the innocuousness of the operation, saying, 'it is no more than a wound in the integuments, the opening of a membranous sac, and the simple or multiple division of an aponeurosis, or a tendinous cord.' The truth of these assertions is awkwardly contravened by the fact, that out of 183 operations practised from 1836 to 1841 by my colleagues and myself, 114 died; and that out of 97 of these operated upon between 50 and 80 years of age, full 70 died, that is, *three-fourths.*"

M. Malgaigne here fully relates a case of an old epiploic hernia which had never been strangulated, but enticed and deceived by the doctrine in vogue, M. Malgaigne was led to practise the operation. The symptoms were those of inflammation of the omentum, communicated to the peritoneum. In this case the operation was inadmissible.

"Histories of this kind of case may be accumulated from the experience of surgeons who seduced, by a fatal doctrine, have hastened to perform an operation which nothing indicated or justified."

A man, thirty years old, came into St. Bartholomew's Hospital for a tumour of the scrotum. He related that he had had for many years a hernia which had been considered omental; he had at first employed an ill-constructed bandage, which he afterwards abandoned; and on the eve of his entrance into St. Bartholomew's he received on the groin a kick from a horse, which produced swelling and pain in the hernia. Mr. Nourse prescribed a bleeding, a lavement, and a poultice.

The next day the swelling was the same, the patient had had no stool. A purge was ordered, the medicine was vomited up. In the evening another clyster was administered.

The third day, the constipation continuing, it was suspected the intestine formed part of the hernia. The patient was bled again; the purgative was repeated, but with no other effect than producing two or three vomitings in the evening.

The fourth day, the constipation remaining, the operation was undertaken. The sac was thick and hard; there was no intestine, but only a portion of omentum perfectly sound, with a small quantity of sanguinolent water. Nourse, aided by Percival Pott, cut and tied the epiploon; the patient died the fifth day after the operation with gangrenous omentum; and all the reflections which this deplorable case inspired in Pott, amounted to this, that he was ignorant how the omental hernia could produce the constipation; "it is alone certain," said he, "that it was sound at the time of the operation, and that it was found gangrenous after death."

On the 27th September, 1814, a man, almost in a desperate state, was brought to the Hôtel Dieu; the extremities were cold, the visage pale, the pulse extremely small, scarcely perceptible; the belly tender, especially at the inferior part; hiccup, consti-

pation, vomiting of inodorous matters, existed; and to complete the case, the patient stated that two hernias which had existed for a long time had become painful. Dupuytren, uncertain of the diagnosis, prescribed bleeding and lavements; the same evening an abundant alvine evacuation took place, others took place during the night; the vomitings ceased, and the next day the pulse was found fuller, the face red, the abdomen pliant, and the intelligence sufficiently restored for the patient to be able to reply exactly to the questions put. He then said, that he had had two inguinal hernias for eleven years, insufficiently restrained by a bad bandage; that in the evening, after an effort, they escaped out of the bag and became painful. He had reduced the right hernia, a physician had put back the left. The symptoms were aggravated, and therefore he was induced to apply to the Hôtel Dieu.

Dupuytren asked what was to be done. There were neither vomiting nor constipation; nevertheless, there were the *greater part* of the symptoms of strangulation. He made the patient walk; the left hernia was reduced easily, and returned again as easily.

The same evening the hiccup, which had continued hitherto, ceased; the abdomen became soft, although still tender on pressure, particularly in the hypogastrium and the iliac regions. At this moment Dupuytren decided to operate, "*persuaded*," said he, "*that little inconvenience would be produced by the operation were he deceived, and great good if there were strangulation.*" He operated on the right hernia, there was no strangulation; he operated on the left, there was none either. The man got well; and Dupuytren observed, that "*it was very doubtful whether the two operations had not contributed to this fortunate result.*"

M. Malgaigne relates several other cases of a similar kind, and proceeds thus:—"These examples suffice to show the danger of a doctrine which conducts surgeons of ability to such deplorable errors. It remains to inquire whether the danger is not due to the nature of things, and if it be possible to avoid it; but I think that in the majority of cases we may find exact and clear indications, by carefully studying the various morbid conditions which hernia presents. Although I would not here be understood to treat the immense question of strangulation in its full extent, I shall advance the present conclusion, to which my researches tend, that it consists of three elements, two primitive and one secondary.

1. Simple and pure strangulation, which is rare, occurs without inflammation, and produces gangrene in a few hours.

2. Simple and pure inflammation, very common, and which is almost always confined to the serous membrane of the hernia.

3. The inflammation, *en masse*, of the viscera contained in the hernia, of the omentum with its adipose tissue, of the intestine with all its tunics. This third element occurs seldom, but as a consequence of the other two, whether as the proper effect of the strangulation, when this is not sufficiently strong immediately to produce gangrene, or by the injudicious use of the taxis in the case of simple hernial peritonitis.

There is a question which I shall leave in reserve, to wit, "whether the local peritonitis may not sometimes be complicated with a secondary strangulation." But in the first instance I shall confine myself to treat of the cases wherein the peritonitis is without complication.

This peritonitis is a common occurrence in hernia. It is probably from not having studied hernias in their simple state that surgeons have overlooked it: they recognise the effects of inflammation, but have not perceived the cause.

This inflammation presents many degrees, which one may refer to two principal divisions, viz., adhesive inflammation and suppurative inflammation.

The adhesive inflammation is frequently slight and transient, accompanied by colics, more or less severe, which are removed by lying in bed, by poultices, by warm drinks, and diaphoretics. All these slight phlegmons occur from ill-managed trusses and bandages in most cases.

The most general cause, perhaps, is the prevalence of wet weather. It seems to me the human body may, in some measure, be penetrated like a sponge; with the humidity of the air our tissues become swollen, and we feel ourselves heavier than usual. These phenomena are particularly remarkable in cases of hernia.

Another cause consists in the excess of eating and drinking; vegetable diet especially is liable to produce an accumulation of gas in the abdomen and the hernia.

The symptoms vary much; sometimes they are confined to dull colics, eructations, a mental and physical inquietude, a sense of weight in the abdomen, and a weariness of mind: the whole recurring strongly after a free repast, and frequently at intervals, leaving the patient in an apparently sound state. In some sense there are no local symptoms, and the general symptoms are only those characteristic of a disordered digestion. Many bad digestions and decided indigestions occur in patients without hernia, and are never attributed to the local irritation of the peritoneum; so that it would probably be too much to consider it as a special cause of hernia. I had long regarded this uneasy feeling as the result of a simple change of place of the viscera, without reference to any irritation. My opinion became gradually changed. This general *malaise* was observed to be associated with the hernia, as a

cause and reduction always succeeded in removing it, and preventing its return; and, consequently, it differs, as regards this purely local cause, from ordinary indigestions: and, secondly, if the hernia be formed entirely, or in part, by the omentum, the omentum becomes adherent to the sac.

This, then, is the first state of the hernia which produces a certain morbid disposition in the herniated viscera, and the effects are due to adhesive inflammation. Surgeons have scarcely paid any attention to these facts; while hernias were easy of reduction they left them to the bandagists, who were too busy to think of anything but the mechanical part. When the hernia was external these artisans reduced it, applied a bandage, and all was done; if the bandage, acting too exclusively upon the external inguinal ring, admitted the hernia into the canal, the symptoms continued, and then the science of the bandagists was at fault. One of our most noted Parisian bandagists had to do with a hernia thus included in the abdominal canal, for which he had applied a special bandage; this was perfectly inefficacious, and when the patient came to consult me, I immediately removed it: after which a bandage, properly applied over the canal, restrained the hernia, and immediately removed an imagined feebleness, which the bandagist had stated to be the cause of the pain which the patient experienced.

M. Malgaigne relates several cases in support of his views, whereof we select the following. M. Cunier consulted me in August, 1837, for a left inguinal hernia, which had appeared without any known cause eighteen months before. A Parisian mechanist had applied a bandage, which at first restrained the hernia, but afterwards let it escape. An English bandage which I applied perfectly restrained the hernia. In November of the same year, having omitted the precaution of putting on his truss every morning, the hernia descended, and was easily reduced. In February, 1838, the gut came down again, and was reduced by the taxis, after the use of the warm bath.

Finally, on the 15th of December, 1840, in returning from the funeral of the Emperor, he had a very vivid discussion, and in the heat of the argument the hernia again escaped. The taxis and the other usual remedies were resorted to without effect, and he had recourse to me on the 24th of December, in the evening. The scrotum contained a tumour as large as a fist, manifestly epiploic and indolent; the abdomen generally was without pain; the appetite uninterrupted, and the bowels regular; and, besides, the gut had been down for nine days. I immediately ordered an emollient cataplasm to be applied to the tumour, and the ring previously anointed with the *pommade de belladonne*. The next day these topical remedies were renewed: a bath at noon, and after the bath a third cataplasm. I arrived at half-past one, and commenced the taxis. In about twenty minutes three-fourths of the tumour returned at once, and in six minutes the rest followed by little and little. The taxis was very painful; and I ought to add, that some parts of the tumour fluctuated under the finger. Very probably the slow irritation of the peritoneum had here produced a slight effusion of serum, which had prevented any strong adhesion from being formed.

M. Malgaigne, as our readers already perceive, has a strong disinclination to the section of the stricture, as a means of relieving the strangulation in omental hernias, and warmly advocates the sufficiency of mild antiphlogistic means, combined with the taxis, as a remedy, at least, in a great variety of cases. We present our readers with a few concentrated abstracts of the cases published by this author in support of his practice.

Case 1.—Roche, aged 78, had had three hernias for ten years. To wit, one in the linea alba, a little below the umbilicus; and two in the groins. The right hernia was not large, and easily maintained in its place; the left was a confirmed bubonocele, and was difficult to keep in bounds. He had always worn trusses; and when the left hernia escaped from under the cushion (of which he was immediately informed by colicky pain), he succeeded in easily reducing it. He was habitually constipated.

On the 11th June, 1840, when he had had no stool for six days, the left hernia escaped, and was attended with colic. An attempt was made to reduce it, without effect. The old man waited, thinking the hernia would be reduced, as heretofore. The tumour remained, and on the 13th he entered the infirmary. The tumour filled the inguinal canal, and projected out of the external ring: it was hard, distended, and painful to the touch; it was dull when percussed. Slight abdominal pains; no thirst. I placed him on his back, with the thighs and pelvis raised. Cold applications made to the tumour, a tobacco clyster thrown up; and two bouillons given him per day. The clyster brought away two copious stools.

On the 14th the pulse was a little irregular; the tumour was larger, but less hard. The cold cataplasms continued; a quarter of the aliment only allowed.

Things went on in this way until the 24th; the abdominal pains having ceased, and the patient complaining from time to time only of cramp in the arms; the constipation remained. The simple lavements were administered, but were not even returned. In the evening of the 24th, the tumour being more supple, an attempt was made to return

it: it re-entered the canal with a "bruit de frottement," but it came out again as soon as the pressure was suspended.

On the 25th, a bottle of Seidlitz water brought away two stools. On the 28th, the tumour being not more easy to reduce, a new purgative was given, and acted. On the 30th, a part of the tumour was returned, the rest seemed adherent; consequently a bandage was applied, and the health being otherwise perfect, the patient returned to his ordinary mode of life.

Case 2.—Adrian Lepere, ætat. 52, was liable for twenty years to colicky pains, of which he knew not the cause. At the commencement of May, 1841, he suddenly felt a pain, which darted right through him just above the navel; and he perceived a small tumour in the linea alba, about an inch above the umbilicus. He continued notwithstanding at his work, during that and some succeeding days. But on the 1st of June he was seized with a violent colic; he had a regular stool, but immediately afterwards he was attacked with vomiting. The tumour, which till then could be pushed back, became irreducible. He lay on his back the whole day, having inappetence and thirst; but he drank wine and water without reproducing the vomiting, and slept during the night. But the *malaise* continuing, he next day came into the infirmary. He had then at the place indicated a tumour as large as a filbert, indolent upon simple pressure, painful when attempted to be reduced. To the touch its upper half appeared to be formed of omentum, while in the lower half a slight displacement of air and liquid was perceived. No vomiting; slight colic and inappetence. Low diet. Cataplasms over the tumour.

3. The appetite good; the abdomen without pain; the pulse calm. He had a stool to-day. Regularly at two, a.m., he feels a nausea almost amounting to vomiting.

4. The general health good; the tumour remains irreducible. Full diet. The patient was discharged with the tumour undiminished, but restrained with a bandage.

Case 3.—Gonot, an epileptic patient, aged 55, had a congenital inguinal hernia of the left side. The left half of the scrotum was not developed; the small and atrophied testicle had not descended below the external inguinal ring; but the hernia extending much further, had pushed along the undeveloped scrotum as far as the right side of the perineum. He restrained this hernia with a clumsy French bandage, which frequently allowed it to escape: but he was always able to reduce it in five or six hours at furthest.

The 13th of October, 1840, the gut came down, and could not be reduced. He came to the Bicêtre, holding the hernia with both his hands; as soon as he arrived he was put to bed, and the dresser made some unsuccessful efforts to reduce it with the hand. Next day, two pupils tried in vain to push back the gut, and gave a great deal of pain. Other attempts were made without effect. The warm bath was used for two hours, and then the taxis, to no purpose. Nausea and vomiting, of a whitish fluid, occurred during these processes. At half-past four, p.m., a tobacco clyster was given, which produced a little stupor. He passed a calm night; and finally, on the morning of the 15th, the operation was deemed necessary, and I was summoned to do it.

In the left inguinal region I saw an elongated tumour following the direction of the canal, and descending towards the perineum, on account of the absence of the right side of the scrotum: it was about an inch thick, and resembling the female labium pudendi. The skin which covered it was red, and sensible to the touch; the tumour itself was pasty, gave a dull sound on percussion; behind and near the inguinal ring I perceived a tumour of the size of a haricot, which was probably the left testicle. The external ring was large enough, and the obstruction was situated manifestly at the inner ring, and, as far as it is possible to assert, at the neck of the sac. The tongue was dry; the thirst considerable; but the abdomen was soft, and painless on pressure. The tumour itself was painful only when pressed; the pulse quiet. The constipation had persisted since from two days before his admission, but he was habitually costive. He had a constitutional cough.

Having considered all this, I gently tried the taxis myself for six hours, and not succeeding, prescribed a bath for two hours. After the bath, cataplasms upon the tumour; decumbency on the back; the thighs to be bent upon the pelvis; the hams supported by pillows. He passed the day without nausea or vomiting. On the 16th he asked for something to eat: I gave him quarter djet. On the 17th the tumour was softer. The patient said he had made the hernia go up, but it came down again immediately; but I tried to reduce it, without succeeding. The digestion was good; the costiveness remained. The man was put on half diet, and next day on full diet. On the 20th I reduced the hernia, almost without difficulty. A lavement, given the same day, procured the first evacuation since the 11th of October.

M. Malgaigne observes, in conclusion,—I have chosen these cases from amongst many, because they are adapted to show the first shades of herniary peritonitis, from simple irreducibility to colic, nausea, and vomiting. I have confined myself to epiploic hernias, because in them the peritonitis is simple, and obstipation of the gut cannot be asserted to exist. A true strangulation could not have existed, for surely such would not have yielded to baths and cataplasms. I know

that in spite of words and things, a good number of surgeons, after having diagnosticated their *inflammatory strangulation*, have recourse to the bath as an excellent adjuvant to the taxis, and explain its pretended efficacy, by saying that it diminishes inflammation: as if when the penis were strangulated by a metallic ring, which would be an exact image of real strangulation, the bath could do anything towards soothing the engorgement of the glans, or to assist its escape from the ring. In another paper I shall treat of true hernial strangulation, but I shall more immediately pursue the subject of simple inflammation in intestinal hernias, where it presents shades as well marked as in the omental hernias which we have just considered.

We shall continue to make epitomised extracts from the interesting observations of this writer.

STONE IN THE FEMALE BLADDER.

DILATATION OF THE URETHRA.

To the Editor of THE LANCET.

SIR,—The following case appears to me to illustrate the extent to which the female urethra in a very young subject may be safely dilated. I am, Sir, yours obediently,

J. PEYTON PICK, M.R.C.S.L.

Braunton, near Barnstaple,
Dec. 30, 1841.

May 4, 1841. Elizabeth Barnes, six years and a half old, of a wan and anxious countenance, with an emaciated body, has been afflicted for the last two years with a frequent desire to pass her urine; to accomplish which she is obliged, after having seated herself upon the utensil, to throw herself forward until her head nearly touches the ground, and at the same time she takes hold of the anterior part of the nymphæ, which is very much elongated by her pulling it in this position; after making many painful efforts, she passes a little urine, accompanied with a great deal of irritation of the rectum, and a discharge of fæces mixed with mucus and blood. To such an extent is the rectum sympathetically affected, that one medical man, supposing that some foreign body, such as a pin, had lodged in the bowel, had ordered leeches to the fundament, &c. On testing the urine with litmus paper, it was found slightly acid, but not more so, I think, than is usually the state of this fluid in health. On passing an instrument into the bladder, I distinctly felt a stone. My talented friend, Mr. March, of Barnstaple, was kind enough to see the case with me, when we decided on removing it by dilatation. For this purpose Mr. March kindly lent me an instrument very ingeniously contrived by himself, and well adapted for the case. I had great trouble and difficulty in accomplishing my object, as the little patient was always very refractory, and could not be kept still for an instant; but having passed the instrument about seven or eight times in the course of ten days, I was enabled to take away the stone with a pair of lithotomy-forceps. It weighed six drachms and forty grains, and measured in circumference four inches and a quarter by three and three-quarters. She was ordered a dose of opium, which was to be repeated, if necessary, in a few hours.

14. Has had a tolerably quiet night, but complains of pain in the abdomen. On pressing near the right groin great pain is produced. The pulse is 160, full and firm, but she is evidently greatly excited by my presence. There is profuse perspiration, with great heat of the body; complains of thirst; complete incontinence of urine, but she does not complain of any pain in the urethra. She was bled to eight ounces, which made her faint, and she said the pain was almost gone from the belly. The blood was very much buffed. Ordered a laxative of compound jalap powder immediately, to be followed by

℞ *Calomel*, gr. j;
Tartarised antimony, gr. ¼. M.

To be taken every three hours.

15. Better; has had a quiet night, but there is still some pain on pressure near the left groin; pulse 125; can retain a little water. Continue the medicines every four hours; twelve leeches to be applied to the affected part.

16. Still some tenderness in the abdomen; pulse 108. Continue medicines; apply a hot poultice of bran to the abdomen.

17. Better; pain in abdomen gone; pulse 90. Omit medicines.

She gradually recovered, and had regained perfect command over her bladder in less than a month by day, but at night there was, when I saw her about six weeks since, still incontinence of water, unless she was awoke up at a certain period during the night, or it was prevented by abstinence from any liquid for a few hours previously to retiring to rest. Stone in the bladder, I believe, is a very rare affection in this part of Devonshire.

KING'S COLLEGE HOSPITAL.

CASE OF HYDROPHOBIA.—TREATMENT AT FIRST BY PRUSSIC ACID, AND SUBSEQUENTLY BY THE APPLICATION OF ICE TO THE SPINE.

EMMANUEL SOULT, aged 7, a pale, thin boy, of delicate appearance, was admitted under the care of Dr. Todd, on the 22nd of November, 1841. Two months ago while playing in the street, a dog ran past and

seized his cap: in attempting to recover it the animal bit him under the right eyelid; the dog ran off, and nothing more is known concerning him. The wound bled profusely, and the child was immediately taken to a neighbouring hospital, where it was proposed to excise the bitten part; this, however, the parents refused to permit. The wound was dressed, healed quickly, and left a cicatrix three-quarters of an inch in length, which has never occasioned him pain or inconvenience of any kind. On Sunday morning, Nov. 21, the boy's mother perceived that he was not quite well; he appeared more drowsy than usual, and begged to be allowed to remain longer in bed, a thing very unusual with him; he was feverish, and did not eat his breakfast with his usual appetite, and complained of pain in his head. There was also a strangeness in his manner and appearance which induced his mother to give him some jalap; this operated briskly, but did not relieve any of the symptoms.

The boy continued to get worse, and about four o'clock in the afternoon he suddenly started up and threw himself into his mother's arms, screaming loudly as if he were frightened. His mother then observed that his eyes were very bright and prominent; that there was a considerable noise in his chest and a catching inspiration; there was also some frothing at the mouth.

He threw his arms about very rapidly, and made some ineffectual attempts to vomit. His mother then offered him drink, and begged him to lie down, both of which he professed himself unable to do, requesting that the drink might be taken away; he likewise refused to eat some bread and butter. He did not manifest any disinclination to the presence of water, unless it were offered to him to drink.

As night advanced, the symptoms increased; the frothing at the mouth became very troublesome, and it was remarked that he never swallowed his saliva, but kept continually wiping his tongue with a handkerchief.

At one, p.m., on the 22nd, he was admitted; he was then in a state of frightful agitation, sitting up in bed, staring wildly about him, and calling out loudly when any stranger spoke to or looked at him: with his mother he was more quiet. His manner was that of a person under the influence of fear.

The patient now manifested the following symptoms:—Eyes peculiarly bright and staring, with dilated pupils; a great disinclination to lie down in bed; spasmodic twitchings of the sterno-mastoid muscle, his head being evidently drawn round at each spasm; also of the arms and hands, with heavings of the chest, continual agitation of the muscles of the face and larynx; abundant frothing at the mouth; vomiting, apparently of saliva and a viscid mucus; over the whole surface of the chest a loud mucosonorous râle was heard; heart's action very rapid, but sounds natural; pulse small, 140; complains of pain at the region of the heart, and constantly presses his hands upon the chest, and retains them until the spasms oblige him to remove them; skin dry, but free from any undue heat; the lower extremities were not obviously affected; the power of the sphincters unimpaired; pressure on the cicatrix did not occasion pain, nor was it red or swollen; the lower lip at its right angle was very swollen, which his mother said was occasioned by his having bit it; the tongue was constantly protruded.

He was now offered some water; he took the vessel which contained it, and attempted to convey it to his mouth, but failed, and declared that it was impossible for him to drink, and begged that it might be removed. Some of the water was rubbed on his legs without exciting any uneasiness or disturbance. Some bread was handed to him, as he had taken nothing since the previous day; this he refused quite as decidedly as he had declined the water, declaring his inability to swallow it.

Pressure along the spine did not occasion pain; he answered all questions rationally; neither sight nor hearing were in the least affected. He was taken from the bed to make water at his own request; neither the sight nor the sound of the falling urine affected him; the presence of strangers appeared to excite him most; he was much alarmed if any one looked fixedly at him, and loudly ordered him not to do so. At this time there was some intolerance of light.

The excretion of mucus continued to increase, and the spasms became more frequent, recurring at intervals of from one to two minutes; they were always attended with a violent retching effort, as if something were irritating the fauces, which occasioned him much inconvenience.

He was now ordered up stairs into the sister's room, that he might be kept as quiet as possible; the room was darkened, but immediately on the shutting out of the light he became much alarmed, and begged that the shutters might be again opened. He evinced extreme sensibility to draughts of air, and requested those who spoke to him not to blow upon him.

He was again requested to take food, but in vain. An enema of beef-tea containing ten minims of prussic acid was administered. He did not resist the introduction of the pipe, and retained the enema. The attempt to take a little wine occasioned him great spasm. At a quarter to three, p.m., he lay down for the first time. At a quarter to four, five minims of hydrocyanic acid (Ph. L.) were administered by a camel's-hair pencil, moistened in the acid and applied to the tongue; at four o'clock the spasms were fre-

quent and the retching violent; the acid was repeated.

Quarter-past four. Ten minims of acid were given in the same way. Almost immediately after this dose, he seemed more quiet, and lay down in bed: at this time there were only three persons in the room.

Half-past four. Ten minims more acid given. This time he applied the brush himself; he seemed to be sensible that he derived some benefit from the medicine. He became more quiet, the retchings seemed less frequent; he passed a considerable quantity of urine in the bed, and was sensible of its escape.

Three-quarters past four. Ten minims of the acid administered. Five minutes after this dose his pulse was 120; he was more quiet, pupils more dilated; he requested to look at the candle, which was brought to his bedside. Soon after this several persons entered the room, and he became more excited; the spasms returned with increased violence; the retching efforts were more constant, and he could no longer lie down. During the spasm there was, on one occasion, slight opisthotonos, but of brief duration.

Five o'clock. Dr. Guy, who remained to watch the case, now directed twenty minims of hydrocyanic acid to be given, and within five minutes ten minims more were given, but without any obvious effect.

Quarter-past five. Another enema of beef-tea was administered without any hydrocyanic acid; it was immediately ejected with considerable force, bringing away some fæculent matter.

Half-past five. Dr. Todd saw the patient again, and directed the repetition of twenty minims of hydrocyanic acid. It was poured by Mr. Gray, the clinical clerk, on the patient's tongue: a violent spasm immediately ensued, occasioned, no doubt, by the effort at deglutition, and also by the excitement produced by the entrance of several persons into the room. There was again slight opisthotonos, and the glottis was spasmodically affected; the face became livid, and the breathing seemed to cease, so that it was thought he would die suffocated; the heart's action also was very feeble. He soon, however, recovered his breath, and the pulse improved; but the retching and spasms continued with great violence, and he showed some tendency to delirium.

At six, a frigorific mixture of ice and salt, inclosed in ox-gullets, was applied along the spine and round the throat.

Quarter-past six. Has been more quiet since the application of the ice; does not foam so much at the mouth; retching less frequent; pulse 100.

Half-past six. Muscles of the larynx and pharynx almost free from spasm; his feet are getting cold, and pulse falling, 96; the ice-bags were removed, and hot bottles applied to his feet and legs. He complained of thirst; some rough ice was offered him; he snapt at it, and devoured it greedily with astonishing rapidity, *swallowing it with ease.*

Seven. The ice-bags have now been off half an hour; he is becoming excited again; pulse 132; but *the frothing at the mouth and rattle in the chest have entirely gone since the application of the ice.* In the last three-quarters of an hour he has eaten a pound and a half of rough ice, which he prefers to ice-creams, which were procured for him. His swallowing had so much improved that he was able to take some wine. On the application of the ice-bags, the heart's action became greatly depressed; breathing quite natural, and free from râle.

Eight, p.m. Ice-bags removed; pulse 96; feet and hands cold; swallows wine in considerable quantity, and with it liq. opii sed. in twenty-minim doses occasionally.

Half-past eight, p.m. Continues quiet; has eaten some bread; there is some incoherence of speech; pulse 140. From this time till a quarter to eleven he continued remarkably free from spasm, with easy deglutition, taking occasionally a little wine and ice; he also called for some coffee. The tendency to delirium increased, however, and at eleven o'clock Dr. Guy, who was now with him, tried the cold douche. Almost immediately after the douche the pupils, which had been previously much dilated, became extremely contracted, and the boy died in the course of a few minutes. Various efforts were made for his resuscitation, but in vain.

The *rigor mortis* came on very quickly, before the means used for his resuscitation were suspended.

After-death Appearances.

The body was examined fifteen hours after death. The brain and its membranes were much congested, and the cerebral substance was rather softer than natural. The spinal veins and meninges were also much congested, but the cord was natural. The lungs and bronchial tubes much congested. Abdomen natural. Stomach empty and contracted. Pharynx injected; its follicles seemed large.

The following

Clinical Remarks

were made by Dr. Todd, previous to the inspection of the body.

That assemblage of symptoms known under the name of hydrophobia, or, more correctly, *rabies*, is the result of the introduction into the system of an animal poison, the operation of which presents several remarkable peculiarities. This poison is generated spontaneously by animals of the dog or cat kind, or by the genera felidæ and canidæ, of the class carnivora; and it is communicable from these animals not only

to individuals of their own kind, but also to those of other genera, of at least the mammiferous class. For example, a dog becomes spontaneously hydrophobic—he can communicate the disease to a sheep or to man, but there is no evidence to prove that the fluids of a sheep or of the human subject, affected with this disease, can inoculate another animal with it. The experiments of Magendie and Breschet, performed with the object of trying to inoculate dogs with the fluids from a patient in the Hôtel Dieu, certainly failed to prove that the disease was communicable by the human subject.

It must be confessed, that it is difficult to experiment with this poison, especially on dogs, prone as they are to its spontaneous generation; for another remarkable feature of the poison is, that it remains latent in the system for a considerable period, varying from some days to several months; ordinarily, however, ten days to six weeks, or two months. This was exemplified in the case before us; the boy was bitten just two months before the symptoms of the formidable malady under which he sank, made their appearance, and during that interval he continued perfectly well; even the wound through which the poison had been introduced cicatrised quickly, and never occasioned any inconvenience.

In the existence of a period of latency the hydrophobic virus does not differ from other morbid poisons; its great peculiarity consists in the great length of that latency. We find that morbid poisons, although they produce constitutional effects, are prone, notwithstanding, to affect certain parts more than others. Thus the typhoid poison is prone to irritate the glands of Peyer; the poison of scarlet fever to affect the throat; that of measles the lungs. It would seem that the hydrophobic poison localises itself chiefly on the spinal system, but especially on the medulla oblongata; hence the convulsive twitchings and spasms of the limbs, the sensibility and irritability of surface, even to the slightest breath of air; the excited respiration; the abundant bronchial secretion; and upon this depends that severe and characteristic symptom, the difficulty of deglutition: for the patient does not labour under a *fear of water*, as the name of the disease would imply, and as is vulgarly supposed—he labours under a fearful sense of the difficulty, nay, almost the impossibility of *swallowing* water or anything else. This we saw exemplified in the case before us. When water or bread was offered him to swallow he put it from him. The very idea of having to swallow anything brought on general spasms. It was evident, too, that independently of the act of deglutition, the throat was the seat of extreme irritation, from the constant and violent retching under which he laboured; yet there was no inflammatory appearance, no swelling of the mucous membrane of the fauces; the cause of the continued action of the pharyngeal muscles was seated elsewhere than in the pharynx itself.

To the irritable state of the medulla oblongata must also be referred the tendency to spasm in the glottis, which constitutes so fearful a symptom of this disease. There was no inflamed state of the laryngeal mucous membrane, no more than that of the pharynx, for the voice was natural, and in the interval between the spasms the breathing was not stridulous. Here the nervous centre occasioned by an irritation in itself, those spasmodic actions which are generally excited by a stimulus applied to the sentient surface, and conducted to it by the excitor nerves. That the boy did not suffer from the fear of water or other fluids was evident, inasmuch as he allowed it to be applied to his limbs, and he did not shudder when he saw it; nor did he feel alarmed at the sight of his urine in micturition.

In the treatment of the case, Dr. Todd stated that he was influenced by the view of the pathology of the disease which he had now given, namely, that the seat of local irritation was the spinal system, but mainly the medulla oblongata. He was, therefore, anxious to keep the patient as quiet as possible, and as free from all external excitement as was consistent with due attendance on him: with this view he had the patient removed to the sister's room, and gave directions that not more than two or three persons should remain in the room. He soon found, however, that this part of his plan was impracticable, as it was impossible to deny access to the great number of students, and others, who were actuated by a laudable curiosity to see the case. It was evident, however, that the presence of a great number of persons looking on, and the entrance of new-comers into the room, very seriously increased his spasms, and added to his sufferings.

As swallowing excited so much disturbance, it was proposed that whatever should be given him in the shape of food and medicine, should be administered so as not to occasion the act of deglutition; accordingly beef-tea was given in enemata,—the first was retained, a second was speedily rejected; and before a third could be given, deglutition had become easy.

Whatever medicine was to be given should also be administered without swallowing; and in looking for a medicine admitting of a ready absorption, and capable of acting as a sedative on the spinal system, it was determined to try hydrocyanic acid. This drug will act as well if applied to a mucous surface, the lip, the tongue, or the conjunctiva, as when introduced into the stomach; and its influence seems to be mainly on the cerebro-spinal system. It was applied on a brush to the lip or tongue, and thus the act of swallowing was rendered unnecessary. The

doses ordered were larger than those actually given, for, in consequence of the constant retching and foaming at the mouth, it was necessary to allow for considerable loss.

A fair trial had now been given to this plan, but without any success; indeed, we were not without fear that the acid in large doses might contribute to increase the spasmodic condition. Knowing the powerful sedative influence of cold, he gladly availed himself of a suggestion of his colleague, Dr. Guy, to try its local application. Some ox-gullets were procured, and filled with pounded ice and salt, and two were applied along the whole course of the spine, and one in the shape of a collar round the neck. To their great surprise, the boy also greedily devoured solid ice in great quantity. A marked effect speedily followed this treatment. The spasms of the throat, the frothing at the mouth, the rattle in the chest, and the difficult deglutition, all gave way. At the same time, however, the heart's action was very much depressed, both in force and in the number of beats; so that it was found necessary to remove the ice in the course of a quarter of an hour. After some time, when the spasms began to return, the ice was again applied with the same effects. It was evident that the ice had a most powerfully sedative influence, and therefore it was found necessary to use stimulants freely.

It might be said, however, that as the spasms and difficulty of deglutition frequently ceased spontaneously, some hours before death, their cessation in this case could not be fairly attributable to the sedative influence of cold. To this Dr. Todd would reply, that the change from violent spasms, retchings, and loud rattle in the chest, was so marked and immediate, that no one who witnessed it could doubt its being the result of the application of the ice; and this opinion received confirmation from the fact, that when the spasms returned they were checked by its reapplication. On the whole, Dr. Todd expressed his belief that cold applied along the spine was a remedy of great power, and deserving of a full and fair trial. He regretted that it had not been used at the commencement, instead of losing time with hydrocyanic acid; and he stated his determination, should another case occur, of employing it, carefully watching the patient, and administering stimulants to counteract the too-depressing influence of the cold.

Previously to making the inspection, Dr. Todd assured the students that he would make it more for the sake of having a perfect record of the case, than from any idea of finding morbid appearances sufficient to account for the phenomena. All that was ever found in these cases was congestion of the brain and spine, redness of the fauces, and some congestion of the lungs. The greatest functional disturbance of the spinal cord was compatible with perfect integrity of structure,

Give a dog or rabbit a small dose of strychnine—in a short time the spinal cord is in a state of excitement, as great as in tetanus or hydrophobia; yet on examining the spinal cord no morbid change is visible. Dr. Todd had examined the nervous tubules of the spinal cord with the microscope, in animals poisoned by strychnia, but had found no change, no rupture, no alteration of size: and it was important to remark, that in all the spasmodic diseases connected with the spinal cord, in tetanus, in chorea, the intimate structure of that nervous centre underwent no change appreciable by our present means of observation.

THE LANCET.

London, Saturday, January 22, 1842.

THERE can be no doubt that the prime instrument of the *new Poor-law*—the workhouse-test—is more irrational in its principle, and has proved more revolting in its results, than anything that has been witnessed in England for many centuries. It is irrational in its principle, because it administers the charity of the nation in a form that is the least acceptable to the recipients, and the most expensive to the rate-payers; rendering exposure not only to moral anguish, but to physical suffering, disease, and death, an indispensable condition of relief, sought either under the pressure of poverty or accidental calamities. We cannot imagine that the workhouses were intended to destroy the lives of the helpless, to put mothers and children to death, or to sap the foundations of health by contagion and scrofulous contamination; yet it is well known—it is proved to demonstration—that the effects of crowding in towns is injurious, and that increased sickness and mortality are the invariable result of assembling large numbers of persons in prisons, hulks, or similar close buildings, such as workhouses, which cannot possibly be ventilated but at an enormous expense. The Poor-law Commissioners, from some inexplicable reason, have turned their attention to everything excepting

the peculiar business of their office, and have neglected to give returns of the diseases and mortality of workhouses in their annual reports. But we have shown, from the returns obtained by the late Committee of the House of Commons, that the mortality in workhouses, under the new system, is immense. It is so great, indeed, that many of our readers considered the results of our calculations to be incredible. No abstract statement of the mortality, disease, and suffering hatched in these ill-advised structures, condemned equally by the science and humanity of modern times, can bring the evils home, in all their inseparable horrors, to the mind: hence, on general grounds, and to strengthen the impression of our previous announcements, as well as to stimulate to some active steps for the abolition of the system, we shall discuss such occasional individual cases of its concomitant abuses as transpire. We must remind our readers, however, that if the Bridgewater, Dublin, and Sevenoaks, are extreme, they are not exceptionable cases; they are the exponents, and the necessary consequences, of the system.

We have before us two accounts of the *Sevenoaks case*,—the one a report of the *Poor-law Commissioners*, the other a report made to the rate-payers of the parish of Sundridge, by Mr. Booth, who, with Mr. Burgess, very efficiently filled the office of public prosecutor, in the court of inquiry over which, according to the new modes of proceeding, one of the incriminated principals presided. In the course of the inquiry, which was abruptly closed by Mr. Tufnell, it was proved that though, in the opinion of the Guardians (who had no very liberal views in estimating space), the workhouse was calculated to hold but three hundred persons, thirty-eight additional inmates were admitted, after it had been reported by the master to be full, on the 11th of November last:—

"That the boys slept in two rooms, nine feet high, with sloping roofs; that one of them was twenty-seven feet long and fifteen feet wide, and the other twenty-one feet long and fifteen feet wide; that in March last there were *ninety-one boys in those rooms*, and that there were fifteen children in two beds, and eighteen children in three beds.

"That a *complaint* was made to the Board by the *medical officer*, that the children had not been *thoroughly washed* from May to November.

"That in February last all the children *had the itch, except two or three infants, and that on some of the children the bones of the toes were visible, through the neglect of those who had the charge of them.*

"That, according to the report of the medical officer, there were, on the 29th of April last, *one hundred and seventy-two children* in that workhouse, of whom *one hundred and sixty-nine had swellings of their necks*; and that, according to the opinion given by him on the 3rd of December last, there were one hundred and twenty-two children who were so afflicted amongst one hundred and fifty-three who were in that workhouse.

"That such diseases are much more numerous in that workhouse than out of it, and that they were produced by the crowded state of the house, and by causes which might have been avoided.

"That old and infirm persons were put into the hospital from the want of other accommodations.

"That the *beds* in which some of the lying-in women were delivered, were *beastly beyond description*; that the lying-in room was *ten feet three-quarters long and seven feet wide*, and contained *two beds*; that in those *two beds there were at the same time five women, and in one of those beds lay two women with their infants*; that on one occasion a woman slept with two others and their infants; and that the lying-in women had not a sufficient change of linen.

"That the late master and matron of that workhouse were advised to resign.

"And that *out-door relief* would be a saving of *two-thirds of the expense*, besides avoiding the risk of disease."

The number of cubic feet of air required by a human being in a sleeping apartment, varies with the facilities for its renewal; or, in other words, with the apertures, warmth, and draught. It has generally been estimated at *seven hundred* cubic feet (nearly nine feet every way) fo each person. In hospitals, where this space is allowed, and the ventilation is tolerable, the effects of crowding are not very apparent. At the Sevenoaks workhouse *ninety-one children* were crowded into *two dens*, in which each child had *seventy-one* cubic feet of space, or little more than four feet in every direction!! Of the deaths from this atrocious transac-

tion we learn little or nothing; but it was proved that at one time all the children (excepting two or three infants) had the *itch*; that the feet of some were ulcerated to the bones; that on the 29th of April one hundred and sixty-nine of one hundred and seventy-two children in the house had *glandular swellings* on their necks; and that on the 3rd of December last, one hundred and twenty-two of one hundred and fifty-three children were similarly afflicted. The result of this remarkable though diabolical experiment, on the life and health of 172 children, will no doubt attract the universal attention of physiologists. It will be placed by the side of the black-hole history of Calcutta. MAGENDIE never proposed or contemplated such an extensive experiment on dogs, rabbits, or guinea-pigs. He will be surprised at the advances we have made since his ill-received visit, in experimental human physiology. Ninety-one children, never thoroughly washed from March to November, shut up in two rooms, scarcely equal in extent to a room nineteen feet every way, with the view, not of illustrating the destructive effects of animal poisons, but for the purpose of carrying out the *new* Poor-law, and relieving the helpless and fatherless, is somewhat novel, indeed, though now, we fear, not uncommon, in England.

Five lying-in women on *two* beds, with their infants, in a room not more spacious than should be allotted to *one patient* in hospitals, according to Sir GILBERT BLANE, is another of the searching experiments on the origin of puerperal fever, performed under the immediate auspices of the Poor-law, which must hand its administration down to the admiration of posterity!

The Genius of the *new* Poor-law must have smiled at the way his work was done in the Sevenoaks Union.

Where actions of this kind have not only been performed, but have made some noise in the world, there are, of course, many disputes as to the share of that particular fame which follows them, to be allotted to the principal agents. This is the especial subject of the Report of the Poor-law Commissioners. "The Commissioners feel themselves called on to pronounce an opinion as to the parties who are to *blame*" (a misprint probably for *praise*) "for this state of things; and, painful as the duty is, they cannot shrink from its performance!"

The Commissioners give the history of the union, and enter into details which imply an indistinct and very remote suspicion that a part of the blame or glory of the Sundridge affair may be supposed to attach to them; but how very erroneously, the few facts which they cite will establish.

The Sevenoaks Union was formed in April, 1835. A resolution, suggested by the Assistant-Commissioner, was passed at the second meeting of the Guardians, to the effect that workhouse accommodation for a number of paupers, not exceeding 500, should be provided. The Guardians did not act up to that resolution, but requested the approbation of the Poor-law Commissioners to certain *alterations* and enlargements of the old *parish* workhouse of Sevenoaks. In other words, under the Poor-law *Amendment* Act, the workhouse of *one* parish was constituted by the Commissioners the workhouse of the *ten* parishes in the Sevenoaks Union. The population in 1831 of the *union*, was 13,240; of the *parish*, 4709. By a minute of September 14th, 1836, the Commissioners having received the consent of the requisite number of Guardians of the *Sevenoaks and Penshurst Unions*, resolved that an order should be issued forming the *two unions* into *one*. The Penshurst Union contained *six parishes*, and a population in 1831 of 5852 souls. The old workhouse of *one* parish was thus used for the accommodation of the paupers of *sixteen* parishes; and of this fact the Commissioners were perfectly well informed. Yet they remark, with characteristic *naïveté*, in their recent report:—The reasons "for erecting a new workhouse were now "strengthened, but no *representation of its* "*necessity* was made to the Commissioners "by the Guardians, nor were any step

"taken for the purpose of giving effect to the "former determination to build."

Under the *unamended* law the majority of the poor lived and were relieved at their own homes. The abrogation of out-door relief was the main object at which the Commissioners laboured. Accordingly, at the approach of the severe season of the year, when work is scarce and families are starving in agricultural districts, the Commissioners issued an order, which came into operation January 14th, 1837:—

"No relief shall be given to *any able-bodied male pauper* entitled to be relieved in any parish or place comprised in the said union, or *any part of his family*, unless such pauper, *together with such of his family as require relief, be in the workhouse*, save and except in cases of sudden or urgent necessity or sickness."

This order contained no provision on the subject of *widows* or other *able-bodied* WOMEN. On the 14th day of August, 1840, the Commissioners rescinded the order just mentioned, and issued another, *extending the prohibition of out-door relief to able-bodied women* in health, with the exception of widows having a family dependent on them, and no illegitimate children. (The form of the latter order is printed in the Seventh Annual Report of the Commissioners, page 99, 8vo edition.)

Other people would, perhaps, have delayed these extreme measures, until workhouse accommodation had been provided for the union; but the delay would have betrayed an ignorance and weakness of which the administrators of the *new* Poor-law have never shown themselves guilty. The small workhouse of *one parish* answered all the purposes of a *test of destitution*, when applied to the poor of *sixteen parishes*, much more effectively than a workhouse of ten times the magnitude. The Guardians had never need to deny relief. Here was an asylum always open for their orphans and widows, and the decayed labourers on their farms. The Christian Guardians never turned any of the weary and heavy laden ones of that good shepherd, Dr. D'OYLEY, away. The workhouse was prepared to receive them. "Come in, was their cry, with your wives and your children out of doors! Quit your small cottages; sell your furniture; rooms are prepared for you, in which if itch, scrofula, and every form of fatal disease are ready to torture—they are also ready to relieve you of the burthens of—your ill-starred offspring." Such was the pressure of distress, or the ignorance of the wretched paupers, that the old workhouse of the parish was filled, and last year contained 338 inmates, gathered, by the orders of the Commissioners, from all parts of the union:—

"Mr. Love, the chairman of the board, states in his evidence that the *guardians* had always *calculated* that the present *workhouse* would *hold three hundred persons*, and, in accordance with this statement, the commissioners observe, that *since* 1837, the workhouse has been returned by the *guardians* as *capable* of *containing three hundred persons*. In 1839 the highest number in the *house was three hundred and twenty-five*, but this state of things lasted only one week. In the next year the highest number was *two hundred and ninety-eight*. In 1840 the greatest number was on the 6th of February, when there were *three hundred and forty-seven*. During the summer the number diminished, but on the 26th of December, in the same year, it had again risen to *three hundred*, and it continued *above that point* until the 6th of March, 1841."

The Guardians, according to this statement in the report, were left to *calculate* how many persons the parish workhouse of Sevenoaks would hold. One might have supposed that this was a point on which the Commissioners, aided, as they say they have been, by eminent scientific men, could have given a better opinion than the Sevenoaks Guardians; and it is probable that sheer modesty prevented them from referring to their own labours on this head in the report.

It is quite clear that the Poor-law Commissioners had nothing to do with the crowding in the Sevenoaks workhouse. No merit is due to them. The lives and the health of the children and mothers were not destroyed directly or indirectly by the Board of Commissioners. Whether merit or blame attaches to other parties, and more particularly to the medical officer, we shall examine next week.

The Principles of Medicine. By ARCHIBALD BILLING, M.D., A.M. Fourth Edition. London: Underwood. 8vo. Pp. 312.

THE most flourishing nosologies have universally amounted simply to a species of *memoria technica*, or *catalogue raisonné* of diseases. The arrangements of Cullen, of Vogel, and of Linnæus, although repugnant to the true principles of classification, were very generally accepted on account of their comprehensiveness. The inquirer was pretty sure to meet, in some part or other of the systems of those writers, with some information relating to the subject which occupied his attention. In them the individuality of each disease was respected; and maladies of every hue and complexion were not forcibly arrayed in the same ranks, and dressed in the same uniform.

The attempts that have been made to establish a *real system of medicine* have hitherto proved signal failures. Dr. Brown's brilliant essay at reducing all maladies into two categories produced but little effect in Britain, already prepossessed by the more rational and practical views of Cullen; but it attained a very high continental reputation, and influenced most unfavourably the practice of the healing art. It is said that not less than half a million of human beings fell victims to the Brunonian dogma. The hypothesis of Broussais, which was as much like that of Brown, as a glove inverted is like to itself reverted, would, if promulgated at an earlier age, have occasioned equal calamities; but the influence of his talented cotemporaries, Chomel, Laennec, Andral, Louis, &c., effectually counteracted the ill effects of his sweeping generalisations.

The "Principles of Medicine" of Dr. Billing, which we have once before, in an earlier edition, approvingly noticed, is an ingenious and laboured effort to explain and delineate the *common nature* of disease. We cannot admit that he has succeeded in proving the existence of this pervading essence, although he has brought learning and superior powers of ratiocination to the task. The author's attempt in this instance, like the search for the philosopher's stone, though unsuccessful, has led to many collateral benefits. The entire work, irrespective of its unsupported generalisations, is a congeries of valuable pathological facts and practical views, and may be cordially recommended to the student not merely as a "thesaurus" of professional knowledge, but as affording an exercise for the intellectual powers, in the *confutation* of the author's too general deductions. We shall adduce a few extracts, as examples of his manner and matter:—

"The difference between inflammation and congestion is, that in congestion there is merely distention of the vessels; in inflammation, there is in addition alteration of tissue—actual deterioration, more or less, of the structure of the capillaries. Thus congestion may be produced in a part by ligature; by the pressure of a tumour; by obstruction to the course of the blood, as by diseased valves of the heart; and vessels thus congested may remain so for a great length of time, and quickly resume their natural state, when relieved from the pressure of obstruction; in fact, the vessels cannot be said to be diseased. But the case is different with inflammation; the fault commences in the tissue. As soon as a want of that harmony between the nerves and capillaries, which is necessary to organisation, takes place, their fine tissue begins to decompose, the particles which were held together by this agency begin to be precipitated from each; and this takes place in every degree, from the slightest scorch of the fire to mortification.

"The *progress* of inflammation shows the dependence of the capillaries on the nerves. A part may, in certain cases, be observed to become tender, before it is red; for it may be observed by experiment, that the pleura or peritoneum of an animal is not extra-sensitive immediately on exposure; it first becomes tender, and then red. The case is the same in ophthalmia, in erysipelas, and in the action of cantharides. From these facts I deduce that the capillaries are dependent upon the nervous system for that tone or energy which preserves them from over-distention.

"*Determination* in ordinary language, implies that blood is sent somewhere in particular, but the heart has no power to direct blood to one part more than another, although, if in any part there be an unusual relaxation of the vessels, they will receive more than ordinary. By this I mean to show that determination is not active but *passive*."

"We have an interesting illustration of this principle in the 'determination' of blood alternately to the stomach and spleen. A given quantity of blood is constantly sent through one arterial channel which branches off to the stomach and spleen; when the stomach is empty and collapsed, its arteries being likewise collapsed, the blood passes into the spongy texture of the spleen, so constituted as to be ready to receive it; on the contrary, when the stomach is distended, its elongated arteries admit the blood freely, and consequently the spleen, being then less forcibly injected, collapses, and holds less blood."

The present edition contains a variety of new matter, but no modification of the theory promulgated in the prior editions. We shall conclude our notice with one or two selections which we deem more interesting:—

"Coffee appears occasionally to produce an effect the reverse of sedative; thus in some persons it favours sleep, a result attributable to the circumstance that sleep is often disturbed in consequence of a superabundance of blood in the brain, being a feverish state, the effect of stimulant beverages, such as wine, &c.; or the over-excitement of brain remaining after an evening passed in interesting society, at theatrical exhibitions, or in the arena of debate, when the ordinary status of the capillaries of the brain has been disturbed by exciting passions.

"On other occasions coffee and tea favour sleep, by counteracting an habitually plethoric condition of the brain, depending on constitutional peculiarity and morbid activity of the heart's function, the tendency of which to cause sleeplessness may be increased by the recumbent posture."

The reader will perceive in these observations an illustration of the oft-repeated remark, that opposite causes will apparently produce in the animal economy the same effects. Here it is evident that sleeplessness may arise from either excessive or insufficient injection of the brain; that both fermented liquors (stimulants), and tea, coffee, digitalis (sedatives), may, according to circumstances, prove hypnotic, or the reverse:—

"Opium, which is usually considered inadmissible during inflammation, until depletion has been employed, is of great advantage, when it is subsiding or past, in supporting the system under a great injury during the restorative process. The use of opium has been pointed out by the best authorities in peritonitis, peripneumonia, &c., or whilst the inflammation is decreasing, and during the reparation of the injured parts. In the cases alluded to, it is given immediately after free bleeding: the bleeding checks the inflammation, and the opium removes the morbid sensibility. On any relapse of the inflammation, evinced by the skin becoming hot and dry, the opium must be combined with renewed antiphlogistic remedies.

"Opium has frequently been used, empirically with antiphlogistic remedies, to relieve pain; but it is, in many instances, itself antiphlogistic; for, by allaying morbid sensibility, it prevents the inordinate action of the heart, characteristic of inflammation, and thus keeps the pulse from becoming hard. Nay more, morphia in particular cases proves most powerfully antiphlogistic—even sedative, secondarily; for by its suspending the appetite and digestion, and depressing the action of the heart by diminishing innervation, the patient is soon debilitated. In fact, morphia in large doses combined with mercury, antimony, colchicum, &c., at the onset of inflammation, sometimes supersedes the lancet, particularly in constitutions where, after loss of blood, a tedious convalescence might be expected. The debility produced by morphia, mercury, antimony, and colchicum, when not the result of any evacuant effect of these remedies, is indirect, and easily recovered from. Patients sometimes become so weak from the influence of repeated doses of morphia, as to require wine."—Pp. 113, 114.

"Although venesection and digitalis may procure sleep by their sedative influence in lowering the force of the circulation, neither of them are narcotics. Yet digitalis or venesection do not always act by lowering the activity of the circulation, or injecting power; on the contrary, they occasionally raise the pulse, in opposition to their properties as sedatives.

"This fact shows the necessity of referring to the proximate cause of inflammation, the state of the capillaries; for in the cases alluded to, the cure of the inflammation is effectuated by the operation of the remedies on the capillaries, not by their effect on the circulation; the venesection relieving the capillaries mechanically by diminishing the quantity of blood,—the sedative by its constringent property increasing the contractile action of the vessels."—P. 117.

"I feel satisfied that Hamilton's work upon Purgative Medicines was of infinite use by removing prejudice; and that though it has led to a too indiscriminate use of purges, that has been an error on the safe side, and a good substitute for the perpetual resort to opium, by which many inflammations were increased, the deceitful ease obtained thereby causing the neglect of the proper antiphlogistic remedies, and thus allowing the inflammation to gain ground. The abuse of purgatives in cases of puerperal women has been too general. The uterus after natural labour is in a state of morbid sensibility, and purging often renders hysterical a female who may be in this state; tenderness, flushed skin, and restlessness, are then induced. These have been mistaken for symptoms of inflammation, the lancet or other depletion has been resorted to, and the symptoms have become aggravated, occasioning serious embarrassment, if nothing worse. The injudicious use of cathartics in hysterical females produces the same result.

"Persons who are in the habit of taking opening medicines, injudiciously find that a teaspoonful of salts acts freely; but when

feverish, four times as much will not have this effect. For the same reason a small dose of calomel will nauseate a healthy person; so that those who dose themselves unnecessarily when well, will often dread its use when they are really ill. Its effect in health, however, is no criterion of its efficacy in sickness."

Delicate people, on the contrary, whose nervous systems are weak, often exhibit great tolerance of purgative medicine; but a free exhibition of tonics, by strengthening the nervous system, will be a much better and more certain mode of keeping the bowels in order. Stimulants will have the same tendency, provided no feverishness exists:—

"Tonics will neutralise acid when it has been generated in the stomach, and relieve for the time; but the way to cure, is the prevention of the formation of the acid by tonics, and nothing better than by an acid, such as the diluted sulphuric acid, three times a-day, either alone, or with quinine or other tonics; and I have frequently cured habitual costiveness by similar means."—P. 133.

"There has been much error with respect to the management of the diet of dyspeptics. Practitioners often restrain them from food which they consider very liable to ferment, such as fruit, vegetables, weak wine, and beer; the stomach should be cured and made to digest such food as is fitted for it, and presented by bountiful nature. It is true that stomachs which have been debilitated, by disease, or by exhaustion by over-feeding, but especially by indulgence in stimulant drinks, will permit the development of acid from such food; but this is of little consequence, for by avoiding alcoholic liquors, and using the proper tonics, such as bismuth, sulphuric, nitric, and hydrocyanic acids, gentian, &c., these censured articles of food will be rendered the most nourishing and agreeable. Those who seek to prevent acidity by eating plain bread and meat, and drinking dry wines only, do not succeed; for in a short time, port, sherry, madeira, and brandy and water, turn intensely sour. Nothing is more injurious than this regularity of diet, for the sameness of food produces sluggishness of bowels, for which variation of diet is the best remedy. Every change of diet, sometimes the use of vegetables, sometimes their omission, sometimes wine, sometimes beer, or any other drinks, will prove a fresh stimulus to the peristaltic motion, which languishes when there is no variety. There are no better beverages for dyspeptics than ginger or spruce-beer, which have the agreeableness of fermented liquors, with scarcely any alcohol. Ripe fruits and lemonade do not produce acidity, but rather refresh and strengthen the stomach: I differ from many persons in allowing ripe fruit to persons suffering from thirst in gouty and calculous diseases. These originate in indigestion; and as vegetables and ripe fruit promote digestion and allay febrile heat, they assist rather than retard the cure, besides the refreshment they afford the patient."

BRITISH MEDICAL ASSOCIATION.

Exeter Hall, Jan. 18, 1842.

R. L. Hooper, Esq., in the chair.

The minutes of the last meeting were read and confirmed.

Dr. Niell, 8, Castle-street, Falcon-square; J. Kirkwood, Esq., 12, Aldenham-terrace, Somers Town, were elected members of the Association.

Donald Fraser, Esq., of the Polygon, Somers Town, was unanimously elected on the Council, in the place of Wm. Rendle, Esq., resigned.

Communications were received and read from Professor Kidd, of Oxford (with copies of his pamphlet, entitled "Further Observations on Medical Reform"); R. Carmichael, Esq., Dublin; and J. H. Nankivel, Esq., of St. Columb, Cornwall, on medical reform.

The following report of the interview of the Committee on illegal practice with the Court of Apothecaries was then read, and ordered to be received and adopted.

The Committee on illegal practice, appointed by the Council on the 2nd day of November, ult., *report*, that having met on the 16th of the same month, the following resolutions were adopted:—

First. That for the safety of the public, and in justice to the profession, it is desirable that the British Medical Association should endeavour to assist in putting an end to illegal practice.

Secondly. That with this view the secretary be requested to write to the secretary of the Apothecaries' Company, requesting an interview with the members of that court, in order to ascertain if they intended to follow up their prosecutions for illegal practice, and whether the co-operation of this and other societies would be desirable in pursuing this object.

Thirdly. That in the opinion of this Council any person prescribing and dispensing medicine for gain for himself or another, acts as an apothecary, and if unlicensed, is liable to the penalties imposed by the Apothecaries' Act for so doing.

Fourthly. That in the opinion of your Committee the Association should not countenance the prosecution of any individual who is a member or licentiate of any legally-constituted college, or medical corporate body, in the United Kingdom.

Fifthly. That this Committee resolve itself into a deputation to wait on the Court of Apothecaries.

Your Committee further report, that having had an interview with the Society of Apothecaries, by whom they were politely and courteously received, Mr. Davidson, the chairman of your Committee, stated the objects of this interview, in furtherance of the foregoing resolutions.

In answer to a question from your Committee, whether the decision in the case of Greenough was sufficiently definitive as to the state of the law respecting the practising of chemists and druggists, Mr. Upton, solicitor to the Company, stated, that *he* never for a moment doubted the interpretation of that clause of their Act, confining chemists and druggists to the compounding and selling of drugs; and he mentioned this, because it appeared to him that the majority of medical men considered it as something new: at the same time, however, he thought it of great importance, as it afforded a powerful precedent for future decisions. He then gave an outline of the number of cases in which the Company had been appealed to, to prosecute within a certain period, and explained the manner which the Company usually adopted in such appeals.

The Court of Apothecaries also informed your deputation, that they were at all times ready and willing to carry into court any case that might be submitted to them, sustained by sufficient legal evidence.

Your Committee, therefore, recommend any *individual* member of their Association to forward to the Company of Apothecaries such case or cases as may occur in their neighbourhood (more especially those of prescribing chemists and druggists), but first to procure such legal evidence as would ensure conviction, as an insufficient prosecution would only tend to confirm the delusion already existing amongst them as to their right to practise.

In conclusion, your Committee think the Council of the British Medical Association, *as a body*, could not appear in the light of prosecutors, but apprehend they might consistently lend their *moral* support to any measure tending to the suppression of unlicensed and incompetent practitioners.

C. H. Rogers Harrison,
Hon. Secretary.

Dr. W. Ifill postponed his notice of motion, which stood for this evening, until the next meeting of Council.

After some preliminaries respecting the discussion of the Medical Bill before the Council, the meeting adjourned to Tuesday, the 1st day of February next.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, January 11, 1842.

Dr. Williams, President.

An Account of a Case of Extensive Disease of the Pancreas. By James Arthur Wilson, M.D.

Alexander Tait, a gentleman's servant, aged 41, of intemperate habits, unhealthy complexion, and distressed countenance, complained of constant pain at the epigastrium, sometimes heightened to agony. He described it as "a pulling together of the pit of the stomach;" which he felt most when recumbent, and after food; and which was often accompanied by headach and giddiness. His pulse was regular, its beats 64 in the minute. In a month from this patient's admission into St. George's Hospital, and after an unusually long intermission, the pain suddenly and violently returned. Shivering succeeded; maniacal delirium, and death.

After-death Appearances.

A considerable layer of fat over the muscles of the abdomen. Pericardium unusually adherent to the heart, which was otherwise healthy. Lungs healthy. Brain softer than usual, and more vascular in its medullary substance. Some serous fluid on the arachnoid; very little in the ventricles. Stomach healthy. Spleen in a very soft state. Kidneys healthy.

The President said, that the case which had been read was extremely rare and valuable: the symptoms marking it had been pain, vomiting, and severe headach, which were exactly those which he had observed lately in a patient who died from fungus hæmatodes of the pancreas. The pain and vomiting were easily accounted for; and the headach he had attributed to the great emaciation of the patient, and to the sympathy existing between the stomach and the brain. Dr. Wilson had attributed to the pancreas the office of merely diluting the bile; and, perhaps, this might be the fact, but it was not proved by the present case, because, although some calcareous matter was found in the duct, it did not follow that the secretions of the pancreas were entirely suspended, or incapable of permeating the mass: neither did it appear that the patient had suffered from any such affections of the bowels, as made a prominent feature in the case. The concretions, nevertheless, found in this case being similar to those found in the salivary ducts, seemed to point to the fact of the pancreas and salivary glands having a similar office, and was another instance of the truth of the physiological opinions at present entertained respecting the uses of that viscus.

Mr. Ancell thought that there was so much contradiction in the physiological facts

advanced with reference to the office of the pancreas, that no conclusion could be drawn from them. Thus, even as to the chemical composition of the pancreatic fluid, the German physiologists asserted that it was alkaline, while the French contended that it was acid. As great a contrast also existed as to the quantity of fluid secreted by the gland; for while Magendie had stated that it secreted only one drop of fluid in the half hour, other writers had said that the quantity secreted in that period was half an ounce. The pathology of the pancreas threw no further light on the subject, for there were no general facts to go upon. Thus, as a symptom of disease of this organ vomiting was mentioned as generally present; and one author had gone so far as to say, that if a patient suffered from vomiting and emaciation, without any other symptoms being present, he should consider that the pancreas was diseased. But how did this statement hold good when tested by facts? Why, out of twenty-six cases of disease of the pancreas recorded by Dr. Abercrombie, there was no one urgent symptom in most of the cases to warrant the diagnosis that the pancreas was diseased. In many cases vomiting was present; in others there was only pain; in some there was pain and vomiting also. Vomiting, however, might be a mere accidental symptom, and be dependent on the involvement of the stomach in the disease. He thought, indeed, we had no fact which would lead us to determine that the pancreatic fluid was of any direct service in the process of digestion. He had no doubt, however, the organ had an important office to perform, and he thought its function had a direct effect on the blood itself.

Dr. Henry Lee had seen a case in which the chief symptoms were pain in the epigastrium and back, with emaciation and occasional vomiting: the patient was a long time ill, and at last died. After death the stomach was found to be perforated at its posterior part by the head of the pancreas, which had become enlarged, and produced ulceration by pressure on the stomach. The edges of the ulcer were red, and the structure of the pancreas was lobular.

Remarks on Typhus Fever. By John Bostock, M.D.

The author expresses his intention to consider typhus under three heads; namely, as asthenic, cephalic, and gastric, which he describes agreeably to these designations. He is of opinion that the cutaneous eruption frequently seen in typhus fever does not constitute a fourth variety. He considers these varieties of fever as frequently complicated with each other, and referrible to a common origin. With respect to the causes of these varieties specifically, he expresses himself as altogether ignorant. He speaks, however, of the town of Liverpool as containing largely the exciting causes of typhus fever generally. With respect to its mode of propagation, he considers that both infection and contagion are capable of transmitting it; and he is of opinion that its occurrence does not exempt the sufferer from a second attack, but modifies it if it occur. With respect to prognosis, he considers the cephalic variety the most fatal. He praises the system of affusion of Dr. Currie, in reference to *this* variety, and with many judicious remarks on the subject of treatment, calls the attention of the society to the remarkable changes of opinion which have taken place respecting it.

Dr. Mayo believed that the author of the paper had not correctly given the opinions of Dr. Currie, with reference to the cold affusion in the asthenic form of fever. If he (Dr. M.) recollected rightly, Dr. Currie did not forbid the use of this remedy in this form of the disease; indeed, he recommended it even in scarlet fever of an asthenic character. It was in congestive cases, similar to the cephalic form of the disease mentioned in the paper, that Dr. Currie had considered the cold might be injurious, by increasing the congestion of the affected organ. Dr. Wright had used the cold affusion in the putrid forms of yellow fever, occurring on ship-board, with the best effect. He (Dr. Mayo) thought the author of the paper had spoken too slightingly of the febrifuge remedies. In cases where tonics were not admissible, and purgatives could not be used, he had seen much benefit from the administration of the non-purgative neutral salts: they cooled the skin, and allayed fever in cases in which more active remedies might be dangerous. He believed that if the real asthenic form of fever could be pitched upon, stimulants might be at once resorted to.

Dr. Webster did not agree with the author of the paper, that Liverpool was of all other towns in the kingdom the most redolent of fever. He thought that this disease was more frequent and general in Glasgow. We found typhus generally more prevalent in the river district of cities, in low, damp situations, such as the banks of the Thames, in London, in which locality typhus was more prevalent than in other parts. With regard to the question of contagion, he was a non-contagionist, and believed that the spread of fever depended on other causes than contagion, such as the persons affected living in the same house, and being exposed to the same influences. There was much to be said, however, on both sides of the question. With regard to the varying character of the treatment during the last half century, he might remark that the epidemics themselves were of a different character, and would, therefore, require different kinds of treatment. Locality would also have an influence on the means resorted to for cure.

Mr. Ancell had been accustomed to observe the treatment pursued in fever ever since he was fourteen years of age, in various towns and localities. In this climate he had no hesitation in saying that the saline mode of treatment was by far the most important. He recollected an epidemic yellow fever which occurred in New York, in 1819, in which he had an opportunity of witnessing the practice of several physicians who employed the various modes of treatment. The most fatal plan was that of venesection; that of bark, wine, and spirits, was the next most injurious; whilst the most successful was the mild practice, by the administration of salines.

Dr. Gregory considered that the question of the origin of typhus was one of the most interesting points touched upon by the author of the paper. He thought in this, as in all other epidemics, variola among the rest, that we could not go beyond a certain point in our inquiries as to their origin; there was something still unknown, and which appeared to baffle all ingenuity. No extent of observation seemed to throw any light on the mystery. He thought, however, that all epidemics bore some relation to each other in respect to their origin. He had noticed, for instance, that whenever the Small-pox Hospital was full, the Fever Hospital was full also; and this circumstance had occurred so frequently, that it could not be the effect of accident. We were quite at a loss to know why, at this season of the year, there should be but three or four deaths weekly by variola in London, while at this period last year the deaths per week amounted to between sixty and seventy; and this had occurred also in 1835. The same was observed with typhus fever. There was nothing remarkably different in London at the present time from what there was last year at this period. If fever had been prevalent at the present time, it would most likely have been attributed to the depressed condition of the commercial interests; but, however the origin of fever might be connected with poverty, and similar causes, there was unquestionably a something besides these, respecting which we were ignorant. He (Dr. G.) thought, however, that one of the principal sources of fever was in the overcrowding of persons. Do away with this, and you would do away with one fruitful source of fever. To this overcrowding in the alleys and courts in Edinburgh and Glasgow was to be attributed the great prevalence of typhus in those cities.

Dr. Webster thought that other causes besides overcrowding conduced to the production of fever. Among these he should enumerate moisture (as, for instance, a wet season followed by great heat), and bad living.

The President rejoiced at hearing the paper which had been read, as it afforded additional evidence (borne, too, by so close and accurate an observer as Dr. Bostock,) of the truth of a doctrine almost purely English, that typhus was not merely a symptom of some existing inflammation, but depended on the action of a poison. He regretted that the paper had not referred to any pathological phenomena, which would have given greater value to the observations on the cure of the disease. But as the criticisms by Dr. Bostock, on the modes of treatment, had fixed more particularly the attention of the society, he would state the results of his own experience. He thought that the poison, though essentially the same, was differently modified in different seasons, and gave rise to varying pathological results. In those seasons in which the bowels had been more particularly the seat of inflammation, and their glandular structure very generally affected, he thought it proved, by a long series of cases, that the treatment by opiated enemata was by far the most effectual. That form of disease, however, had been rare of late years, and finding how rapidly the nurses fell ill of fever, who were employed in the office of exhibiting them, he had of late abandoned their use. In those cases in which the bowels were unaffected, or nearly so, he had employed the most varied treatment. Some very mild cases got well by bleeding, but if the case were of any severity, the patient seemed hurried to his grave by this proceeding. Some cases were treated by saline medicines, and recovered. It was remarkable, however, that cases apparently the same when treated by the most powerful stimulants, did equally well, or even better. Six cases out of seven recovered under the exhibition of two ounces of gin, in which were dissolved ten grains of camphor, every night; and it was remarkable that a treatment apparently so ultra, if it did no good, in no instance appeared to do mischief, and especially as the dose was given in all stages of the fever, and whether the tongue was white or brown, or the patient delirious or collected. He was afraid until some specific was discovered, that the treatment of fever would still long divide the profession, and the scale would still continue to oscillate between bleeding and brandy.

A Case of Stricture of the Trachea. By W. C. Worthington, Esq., Senior Surgeon to the Lowestoft Infirmary. Communicated by James Copland, M.D.

The patient, an agricultural labourer, aged 49, first came under the notice of the author in August, 1837. Four years previously he had contracted syphilis, for the cure of which mercury had been administered, but not to an immoderate extent. During twelve months immediately previous to his putting himself under the author's care, he had been

confined to the house. The state of his respiration most especially attracted the author's attention, both as regarded the peculiarity of the noise attendant upon inspiration, and the very painful effort required for its accomplishment. The sound closely resembled that produced by an unsound horse called "a roarer," suggesting the idea that the air passed through a tube of narrowed caliibre; each inspiration occupied ten seconds, and was obviously effected at the expense of very powerful exertion of all the muscles about the larynx: utterance was hoarse and rough, and a troublesome cough was present. The stethoscope furnished no indication of disease of the lungs. After having suffered as above described with little variation for three years and a half, the patient died from suffocation, some particles of bread and milk which he was taking for breakfast having fallen into the larynx. On dissection, the trachea, just below the cricoid cartilage, was found contracted to the size of a goose-quill; the contraction being quite independent of adventitious deposit of any kind, the product of inflammation. The tracheal rings had entirely disappeared from the strictured part, whilst below the constriction, the rings were somewhat dilated beyond their natural calibre. The alæ of the thyroid cartilage were somewhat approximated.

The author considers it probable that the disease had a syphilitic origin, and that the contraction of the membranous part of the trachea was consequent upon the absorption of the cartilaginous rings, and the simple result of the want of antagonism from the latter.

Dr. Williams regretted that the author had not slit open the trachea, which would have added much value to the preparation, and enabled him to determine in what way the disease begun, and in what manner the cartilages had been removed, or whether by absorption or ulceration. That as the preparation was now viewed (in spirits and a bottle), the pathological state might possibly be congenital. Cases of this description were extremely rare; he remembered only one case of extensive idiopathic disease of the trachea, and in that case the disease primarily began by ulceration of the mucous membrane, and extended to the cartilages which had inflamed and become carious, and the patient suddenly died in the night, apparently from spasm of the glottis.

Mr. Busk had a case under his care similar to the one presented to the society, in which the interior of the trachea had been exposed. In this case the contraction extended throughout nearly the whole of the trachea, the internal surface of which presented the appearance of an irregular contracted cicatrisation: it was probable that the rings had ulcerated away, and been coughed up. In this case the disease had its origin in syphilis, and this he thought was generally present in these cases.

Dr. C. J. B. Williams remarked, that tracheotomy might, perhaps, have been of temporary service in Mr. Worthington's case.

Mr. Webb had seen a case in which similar symptoms had presented themselves. The cause in this instance was an attempt at suicide by division of the trachea. The patient recovered, but suffered from symptoms similar to those which were present in Mr. Worthington's case.

WESTMINSTER MEDICAL SOCIETY.

Saturday, January 15, 1842.

Dr. Golding Bird, President.

INFLUENZA.—HEALTHY STATE OF THE METROPOLIS.—CURE OF CONSUMPTION.

The subject of influenza was brought into discussion this evening, in consequence of the president having remarked that he had lately seen two or three cases of disease, the remarkable depression attending which had reminded him of the great debility which was observed to be connected with influenza.

Mr. R. Alcock remarked, that the influenza of by-gone years must have had one general cause; it had spread over the entire continent of Europe at its last visitation. It was interesting to inquire into its origin.

Dr. Bird observed, that the cause of the influenza was still in obscurity. The last influenza seemed to have followed the tract pursued by the Asiatic cholera, in proceeding from the north-east to the south-west; the various theories which had been advanced respecting the disease were often contradictory. One of the most modern of these was that of a German physician, who stated that he had made experiments on the atmosphere during the last influenza, and had ascertained that its electricity instead of being positive, as usual, was negative. He therefore suggested that the disease should be prevented by persons being clothed in non-conducting materials; that sealing-wax should be placed under the soles of the feet, and that the body should be covered with oiled silk. It must be remembered that, independent of all electricity, this plan of proceeding might prevent the occurrence of the disease by keeping the body warm.

Mr. Brooke recollected in 1837, that after a severe frost the temperature suddenly rose in the night between 20° and 30°: he had noticed that many persons whom he had attended had dated the onset of the symptoms one or two hours after this change in the temperature. This was particularly the case with those persons who had been out in the night, as cabmen, &c.

The President said, that in the history of

the influenza of 1792-3, published by Sir G. Baker, it was remarked, that the disease had made its appearance on the setting in of intense cold after a mild winter. Snow had fallen in May or June of that year. Perhaps the influenza was dependent in this case also upon a sudden change in the temperature. With regard to the treatment of most cases of this disease, bleeding could not be borne: those who were bled, if they did not die, had difficulty in recovering.

Dr. CHOWNE remarked, that influenza, in respect to bleeding and depletion generally, followed the same law as other epidemics; in all of which we knew that depletory means must be resorted to with more caution than if the disease were not epidemic. Of the causes of influenza we knew little or nothing.

Mr. STREETER said, that the influenza of 1837 was different in many respects from that of 1833: that of 1833 was more severe and dangerous than that of 1837, but not so general. He had observed in his own practice, that those persons who suffered from the affection in 1833, generally escaped the disease in 1837. There were, however, exceptions to this rule. He had not noticed that in the last influenza the onset of the disease in all his patients had been confined to a few hours, as had been observed by Mr. Brooke; on the contrary, he had found it to extend over several days; the influenza had followed the course of the cholera, but its rate of progress had been very different; for while the influenza had swept the whole face of Europe in six weeks, the cholera, as had been well shown by Dr. Graves, always progressed at the usual rate of human intercourse. The symptoms of the last two epidemics were different in character. In that of 1833, there was more disposition to disease of the mucous membrane of the chest, and many cases terminated fatally from this cause. In 1837 the cases were milder, and he had not in his own practice lost a single patient. Bleeding in these visitations was seldom borne, he concurred with the president in this respect. With regard to the causes of the disease, it appeared to be not always dependent upon cold, as in the epidemic of 1782; it was in its greatest severity in June.

Mr. FISHER said, that the epidemic of 1837 had been more general in the police-force than that of 1833; but the latter had been followed by more fatal effects. In 1837, the sick-list had risen in four days from 100 to 400; and during the five weeks of the continuance of the disease, out of 3000 healthy young men, 1700 were affected. In 1833, he had traced the origin of consumption to the influenza in sixty cases; while in 1837, notwithstanding the greater prevalence of the epidemic, only twenty-five cases of phthisis had been traced to influenza. The duration of the epidemic in the various cases differed from five days to three weeks. In general it had been found that depletion was injurious; but the tartar-emetic had been of much service, and seemed occasionally to have cut the disease short, by causing the vomiting of a large quantity of bile. It was remarkable that notwithstanding the prevalence of wet during the last six weeks, the sick-list of the police-force had been only in the proportion of one and a half per cent. on the entire number. At present it was only two per cent., while generally at this season of the year it amounted to four and a half per cent.

Dr. CHOWNE had had his attention particularly directed to the character of the disease in the Charing-cross Hospital, in consequence of the circular issued by the Statistical Society, and in no case in that institution were there any of the characters of an epidemic.

Mr. SNOW said, that from what he recollected of the two last epidemics of influenza, that complaint had become connected in his mind with a sudden and considerable increase of temperature. The epidemic in April, 1833, occurred immediately after a continuance of cold wet weather had been succeeded by that which was warm and dry; and the epidemic in the winter of 1837 took place after a frost had yielded to weather considerably warmer. From what Mr. Fisher had just stated, it appeared the police had suffered more from influenza than the rest of the population. In 1833 he (Mr. S.) had charge of a gentleman's practice in the country, at Durham, at the time the influenza broke out, and the complaint appeared to attack the coal-miners in greater numbers than the agricultural and other people: now the coal-miners, like the police, often had to work at night, and they were always deprived of day-light whilst at their work. He had learned that at one of the metropolitan hospitals the only cases of erysipelas admitted during one session were three or four policemen and two washerwomen, who were usually up all night at their employment. Erysipelas was an asthenic inflammation, in some respects resembling influenza; so that it seemed probable that night occupations rendered persons more liable to diseases of this class.

Dr. BIRD remarked, that in the epidemic of 1782, alluded to by Mr. Streeter, the summer had been very cold.

Mr. STREETER had lately had an opportunity of inspecting the books of a general practitioner who had treated the influenza of 1782. He should infer from the prescriptions that bleeding was very rarely resorted to, and that the treatment consisted chiefly of smart purgatives, with tartar-emetic and demulcents of nitre. When disposition to chest-affection existed, a blister was placed between the shoulders.

Mr. FISHER inquired whether any member had seen advantage result from the adminis-

tration of emetics in the advanced stage of phthisis. In several cases of this kind which he had seen with Dr. A. T. Thomson, he believed much benefit had resulted, and in four cases in which ulceration had taken place, a cure had been effected. One of these patients had now got plump and fat, and had remained quite well for four years. The emetics employed were tartar-emetic, or ipecacuanha; but where there was much emaciation, sulphate of zinc, as it did not produce perspirations. The emetic was administered every morning so long as the urgent symptoms lasted.

UNIVERSITY COLLEGE MEDICAL SOCIETY.

Friday Evening, January 7, 1842.

Dr. R. QUAIN, President.

THE subject for consideration was an interesting case of cyanosis,* related by Mr. Marshall at the last meeting. The pulmonary artery arose from the left ventricle, whilst the aorta arose from the right. The child lived to nearly eight months, and died dropsical with pericarditis. The cyanosis had occurred suddenly, when the subject of it was a fortnight old.

The PRESIDENT remarked that this case presented several points of great interest. And first in order of occurrence, was the sudden appearance of cyanosis some time after birth. This symptom was absent in several other recorded cases until a corresponding period, until, in fact, the passage of arterial blood into the system was arrested by the closure of the *ductus arteriosus*. It did not appear that the cyanosis had occurred suddenly in those cases: the closure of this communication was a slow process, and would not account for the sudden development of this symptom in the present instance. It may, perhaps, have had some connection with the convulsive fit which occurred at the same time. The next circumstance was the dropsy: he believed it due chiefly to the imperfect circulation through the lungs, and the quantity of the pulmonary exhalation being in consequence diminished. The occurrence of inflammation in such a subject deserved attention. He next alluded to the various malformations which give rise to cyanosis, and said that such anomalies could only be explained by tracing individual cases through a series, and by a reference to development. In thus considering the present case, he mentioned, first, an instance in which the left *subclavian* was a branch of the *pulmonary artery;* secondly, a case in which the *descending aorta* arose from the *pulmonary artery*. He expressed his belief that the present instance of the *aorta* arising from the *right* side of the heart completed the series. In the first case, but a small portion of the system was supplied with dark blood from the right side of the heart; in the next, a larger portion of the body was supplied from this source through the descending aorta arising from the pulmonary artery; whilst in the last case the entire of the general vascular system was connected with the *right* side of the heart, and was thus supplied with venous (or nearly so) blood. The origin of the *pulmonary artery* from the *left* side of the heart could be traced through a corresponding series.* He said that it would be impossible to believe that in either of the first instances the subclavian artery or aorta had been removed from their usual situation, to be, as it were, transplanted into the unusual one; and equally difficult would it be to explain the present case by any such transposition, or by twisting of parts. The members would recollect that in the development of the heart and great vessels, those parts at one period consisted of a single cavity, which was to form the heart; of a bulbus arteriosus, which was to form the trunks of the pulmonary artery and aorta, and of branchial arches which became the primary branches of those vessels; and that in this condition all formed one continuous channel. They would further remember, that it was simply by a division of the bulb that the two great trunks were formed, whilst the innominate, carotid, and left subclavian arteries were formed from certain of the branchial arches still remaining in communication with one division of the bulb, whilst the right and left pulmonary arteries were formed by the remaining arches, still retaining their connection with its other division. Now he believed that the case of the subclavian artery arising from the pulmonary artery, consisted simply in one of those arches retaining a connection which existed under other circumstances only at a very early period of fœtal life: in fact, the arch which was to form the subclavian artery retained its communication with that portion of the bulb which formed the pulmonary artery instead of with that forming the aorta. In like manner may be explained the case of the descending aorta; and, lastly, the case in which the whole of those arches retained this communication with the right side of the heart. In offering this explanation, he did not, of course, pretend to say why such a mode of division should have taken place; he merely wished to show that such cases, however anomalous, could be reconciled

* This case will be published as soon as the necessary woodcuts are prepared.

* See a case by Mr. Gregory Smith in the present volume of THE LANCET, p. 543.—REP.

with and explained by the laws of development: they were likewise supported by the analogies presented by the lower vertebrata.

Dr. LANKESTER was very happy to hear the very ingenious explanation of this remarkable case which had been offered by the president. He was the more pleased at this, as it had been stated that the case could not be explained by any of the known laws of development. He believed this to be the true explanation of the case: it was absurd to refer such cases to a mere "lusus naturæ." Another explanation might, indeed, be given, which was, that in the early stages of development the ventricles had by some means become twisted on the auricles; but the force that could do this was not easily conceived, for there were other difficulties in the way. It would have been interesting to have known the degree of temperature of the child's body; but this does not seem to have been observed, although it was evidently much lower than the standard of temperature in the human being. He said that much aerated blood must have circulated in the system, as there was so free an opening between the two ventricles: the dropsy he considered to depend on the imperfect power possessed by a malformed heart. The occurrence of inflammation in such a subject was very interesting, as the child approached, to a certain extent, the condition of a cold-blooded animal, in which, according to Dr. Macartney, inflammation did not take place; the analogous process consisting merely in the effusion of plastic lymph.

Mr. MARSHALL said, that he considered the case as still enveloped in obscurity. By what he had stated in relating the case, he did not mean to say that this malformation could not be explained by something consistent with our present knowledge of the laws of development, but merely to express his belief that we were not acquainted with a sufficient number of similar malformations to lead to such an explanation.

The SECRETARY (Mr. Preston) was surprised at one of the circumstances mentioned by Dr. Lankester. It was that in reference to the occurrence of inflammation in cold-blooded animals. When Dr. Macartney promulgated his views, the process of inflammation was less understood than it is at present: all its phenomena may be witnessed in the web of a frog's foot on the application of a drop of essential oil. There is seen the increased activity of the circulation followed by its arrest and the effusion of fibrin. What was this but inflammation? Here, however, the process stops; as in the frog, it does not proceed to suppuration, in which respect alone it differs from warm-blooded animals.

The meeting then adjourned, and the subject of inflammation was announced for consideration at the next ordinary meeting.

Friday Evening, January 14, 1842.

Dr. BUCKNILL, President.

This being the annual general meeting for the election of officers, and for receiving the reports of the past year, the following were elected officers for the ensuing year:—

Presidents—Messrs. Carlile and Marshall.

Treasurer—Mr. T. P. Matthews.

Secretaries—Messrs. Norman and Heath.

Committee—Messrs. Garrod, Fox, Hare, Hocks, Morgan, and Thomson.

The reports were of a most satisfactory character. It appeared that the income of the past year had exceeded that of the preceding year by a sum of 18*l.*; that a larger number of new members had joined the society since last October than had ever been added to it previously in the like period. The library, herbarium, and osteological collection, were in excellent condition; and to the first mentioned, 200 volumes had been added during the past year. The number of members was at present 174.

MEDICAL SOCIETY OF LONDON.

January 17, 1842.

THE society this evening was again occupied with the excito-motory system, but it was chiefly in reference to explanations of former remarks, and nothing offered itself for reporting.

BOOKS RECEIVED.

A Series of Anatomical Plates, in Lithography, with References and Physiological Comments, illustrating the Structure of the Different Parts of the Human Body. Edited by Jones Quain, M.D., and Erasmus Wilson. Division V.—Bones and Ligaments. Taylor and Walton. Fasciculus 95 and 96.

TO CORRESPONDENTS.

A. B. should apply for the information he desires to the makers of the instrument.

Quæsitor.—We regret to say that our correspondent's information is correct, and we think with him that the regulation is a very great hardship. We shall probably publish the regulation next week.

Mr. Murray's paper shall appear in our next.

Mr. Lawrence's cases in our next.

The communication of *Dr. Easton* next week.

Dr. Hiley's paper shall be inserted the first opportunity.